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THE AGE FACTOR AND INTENSITY OR EXTENT OF GALL TRACT DISEASE AS THERAPEUTIC DETERMINANTS*

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THE surgery done in America for gall tract disease (chiefly cholecystectomy) in the past twenty years is not to be unconditionally condemned. Where it is indicated, it is a decisive surgical triumph; the patients are comfortable and satisfied. The low immediate mortality attests its technical excellence. Some experienced observers may not believe that there is a need for a review of the surgical indications; others may imply that the subject is one for surgeons and not for internists. We may easily dispose of the implication by asking you to infer the obvious: medical men who do not operate share with the surgeon the responsibility for advising surgery. Where the results have not been satisfactory they fall heir to embarrassing explanations. A plethora of surgical and medical articles upon this subject testifies in general that if the patients were more wisely chosen for operation those that need it would accept it less reservedly. In like manner, the medical treatment, such as it is, would be more popular if it were not equally damned by faulty application and devised chiefly as a barrier to keep the surgeon out of the abdomen! The line of cleavage between medical and surgical treatment in general has been too tightly drawn; and nowhere is a proper merging of the two more essential than in the field of my discussion. We hold sessions such as these to bring to our patients, through our attendance, the advantages of general medical advancement. We attempt to crystallize opinion, to standardize prac-

tice and provide a clearing house for the interpretation of the current literature and research.

Successful surgery carries with it an inherent tendency towards over-aggressiveness and unwarranted extension. It is both popular and intriguing, this matter of going to the bottom of things and "ablating the disease!"† In abdominal surgery the appendix provided the "grand opening," and it has held its place on the surgical boards, although the enthusiasm for its removal, except where a known or strongly suspected disease is present, has greatly cooled. The onslaught upon the gallbladder was greatly fostered by the assumption that it was comparable to the appendix, a useless organ, often the seat of primary inflammatory disease—if pathology could be demonstrated in it, the earlier it was removed the better. And so, the procession started. So long as a rather plentiful crop of badly diseased gallbladders obtained in every community no great harm was done. However, the "open season" for gallbladders came; the roentgen positivity (Graham-Cole technic) arrived; and lo! that was the agency, brilliant in itself, but designed by Fate to place all dubious gallbladder folks in jeopardy. Here was an agency which made it possible to make objective, certain early evidence of physiological perversion in the matter of biliary function. Almost anyone afflicted with gas and with some sort of intra-abdominal discomfort became a possible candidate for

†It is indeed curious how limited the field of surgery would be if such ablation alone obtained. Except for neoplasms, benign or malignant, or the obtruding and diseased appendix, little else would remain. Rather does the skilled surgeon perform physiological rather than anatomical miracles.

*From the Medical Department of the Duluth Clinic, Duluth, Minnesota. Read before the meeting of the Minnesota State Medical Association, Rochester, Minnesota, May 4-6, 1936.

cholecystectomy, even as twenty years earlier appendectomy resulted. The surgeon had simply transferred his allegiance, and in search of objectivity discarded subjective analysis in terms of history, a weighing of constitutional background, exactitude in interpretation of pain, disregarded proven methods of simple physical diagnosis to acclaim a few high powered laboratory or roentgen specifics.

All this is trite. Perhaps I may the more directly hit to the heart of this problem by referring you to the address read before this association in June of last year (1935) at the meeting in Minneapolis by Dr. Edmund Andrews,[‡] Professor of Surgery at Chicago University Medical School. I think I may safely state that most of you have read that article and that few would agree with everything he wrote. Nevertheless, speaking as one who did not hear the address, but who has read in preparation for this paper a very large number of articles published within the past few years, there is little indeed in Andrews' article which we may currently afford to ignore. This article furnishes us with a very excellent example of the present trend. It is a sincere effort to apply the principles of physiological research to our problems. No surgeon would have delivered such an address even ten years ago; and no internist would have understood him if he did. This reflects the growing enlistment of the physiologist into a direct relationship with applied surgery and medicine. Pathologists had already made that alignment at the beginning of this century.

To those who would desire or need to delve deeply into this physiological approach I would respectfully suggest the reading of certain articles which to me have been most enlightening. Individual reference and acknowledgment to them is impossible, but a list of publications is appended.[§]

It must on occasion occur to us when a speaker ventures a subject as general and evasive as mine. "Why does he not simply state his

attitude or convictions and let the listener compare them with his own?" It is this time-conserving aphoristic expedient which I shall venture to adopt. Our individual isolated experiences are not to be despised, but we must recall with Francis Bacon that they "may be fallacious"; and group experience in gall tract surgery, viewed over a twenty-year period, convinces me that early operation upon doubtfully diseased gallbladders often leads to trouble; and, at the other end of the scale, the late sequelae, involving the liver and the pancreas and their respective ducts, with or without chronic sustained jaundice ("the dramatic SOS of the liver distraught") are a combined medical and surgical problem. Helpful surgery may be too long delayed. These factors are the therapeutic determinants rather than any "a priori" fixed routine. Great advances, indeed, are being made. Surgeons, anesthetists, nurses and personnel are becoming physiologically minded and simple expedients to promote and conserve liver function are the rule.* The liver, plentifully supplied with water and glycogen reserves and not encumbered by fat, means everything to a patient whether he is to be operated upon or not; and the age-old query, "How is your liver?" is eminently mundane. It is quite beyond the scope and needs of my presentation to discuss seriatim what scores of articles in our journals so ably attest. Permit me rather to put down in summary what I hold to be logical and judicious deductions, gleaned from both current literature and thirty years of clinical experience:

1. Testimony rapidly accumulates to show that ultimate gall tract pathology begins with some systemic physiological metabolic perversion. Therefore, the surgical inference that the gallbladder is vestigial and comparable to the appendix, and that primary infection in it, as in the appendix, carries its own extirpation indictment, has almost nothing to sustain it.

2. Early cholecystectomy does not "ablate the disease." The systemic process, the active stage of their "physiological perversion," whatever it is, still continues. These patients may well be young; they may not have yet accommodated

[‡]Andrews, Edmund: Pathogenesis of Gall Bladder Disease, Minn. Med., 1903, p. 131 (March) 1936. Chicago has become a very active center for physiological research. Prof. A. J. Carlson has led the way, and able professors, working with his pupil, Ivy, have been most effective in introducing physiology to clinical medicine. Epoch making indeed is the masterful development in Rochester, where Dr. F. C. Mann and his associates Essex, Bollman and the many surgeons who have cooperated, have added immeasurably to our knowledge and understanding.

[§]See list of appended articles.

*Witness the care with which all abdominal surgical patients are safeguarded by maintaining satisfactory glycogen stores, the oxygen carrying power of the blood, water balance and osmotic equilibrium, etc.

themselves to a "non-functioning gallbladder." Man forages periodically and needs a gallbladder for bile storage and concentration. Fully a pint a day normally jets by Oddi's sphincter and the body needs bile. We need to become as familiar with this sphincter as with the pylorus, the cardia and the ureterovesical junction, because all are under similar nervous control; and the fact of great anatomical subtlety involved in no way justifies ignoring the issue, simply because, as yet, the complicated dyskinesics evade our comprehension.

3. Stasis is a major issue in the dyskinesics involved. Whether we shall ultimately come to a greater use of the "Lyon-Meltzer technique" for gall tract drainage via duodenal lavage, is a question each careful clinician must answer for himself. The Graham-Cole gallbladder visualization has taught us one definite principle: certain fatty foods do empty a functioning gallbladder. This explains the conviction of the laity that olive oil may be a helpful remedy. Frequent feedings promote bile flow. The avoidance of meals is a poor idea for anyone, even if obese. Perhaps if pregnant women† could be enabled to eat five small meals a day, fewer parturients, whether "fair or not, might harbor stones when 'forty.'"

4. Cholecystectomy versus cholecystostomy, like the tariff, seems to be a local rather than a national issue. Simple drainage should not come into consideration at all except in later ages and disease stages, where the patient's debility or associated liver, pancreas and common duct conditions dictate how much shall be done. I introduce the item here because "early cholecystectomy" has led to technical sequelæ that have invited much condemnation for the operation. I refer to the disasters that follow where aberrant ducts leak; where, without introducing surgical drains, bile seepage from the cystic duct causes general chemical (bile) peritonitis or local massive adhesions; where with adequate drainage extraordinary serosal agglutinations form and later plague; and, of course, the culminating curse of a damaged or severed com-

mon duct. All these potential risks may be ignored "if the punishment fits the crime."‡

5. How severe is the crime and how shall we measure the punishment? Unlike appendiceal disease, the question of surgical emergencies rarely arises in gall tract disease. We have plenty of time to think it over, and possibly try other means for relief, even though at this time a certain amount of apology is called for in the so-called "medical treatment." We may well begin the discussion with decisive attention to a study of the type, the distribution, degree and extensions of abdominal pain. We may readily pass over the classical critical types of colic and admit that not infrequently they are "diagnostic," even sufficient to cause judicious clinicians to ignore roentgen negativity. The converse gets us into trouble. The roentgen evidence is made to supersede all else. A comparable situation has arisen in the matter of the diagnosis and treatment of peptic ulcer. Roentgen duodenal defects (largely because they are objective) override all else, and it is assumed that this finding needs no qualification nor adjustment in terms of the patient's complaint, habitus§ or demeanor. Gastro-enterostomy is still a fine operation and it has a decisive place in surgery; but many patients with duodenal defects due to ulcer have other situations to account for their complaints.

6. This leads directly to an analysis of colic; and stones have too long been held to be the sole and direct precipitating cause. The literature is very engaging in terms of when and how they form; it should be critically read as a basis for our understanding and the directing of therapeutic regimen. Andrews holds that silent gallstones should be left alone; with this I heartily agree. Large, fixed stones seem, indeed, to give few symptoms. The smaller the stones and the more normal the gallbladder musculature remains, the more decisive the colics and the more necessary it is at operation to consider the state of the cystic and common ducts. Not many

†Potter, M. G.: Observation of the Gall Bladder and Bile during Pregnancy. A. M. A., Vol. 106, No. 13, March 28, 1936. Actual observation on 390 normal women, showed "75 per cent with large, atonic, globular, distended gall bladders . . ." "Frequent failure of visualization of gall bladder during pregnancy."

‡I refer here to the comments made many years ago by Dr. Charles H. Mayo and taken from the "Mikado," and still an invaluable criterion upon which to choose for surgery certain patients with gall tract dysfunction.

§Recently Harvard's Hooton (anthropologist of note) kindly but cynically remarked to a group of doctors that they should go back, not to the dead house, but to the cradle, for the answer to many problems.

Hooton, E. A.: An Anthropologist Looks at Medicine. Science: 83 (March 20, '36).

surgeons will agree with Lahey that the common duct in the presence of bladder stones should be routinely opened; nevertheless, we have seen at secondary operations after cholecystectomy for stone, as well as in a large autopsy service, a relatively large number of instances where either stone in the common duct has been overlooked, had formed subsequently, or in either instance had interfered with drainage into the duodenum sufficiently to produce moderate or gross dilatation of the common duct. It is still a moot question whether this sort of dilatation may occur in man, as it is said to occur in cholecystectomized dogs, as a compensatory effort to create a basin for bile storage. Likewise mooted is the question as to whether disturbed enervation can produce this tangible and obvious situation, so troublesome to the patient. Drainage of the common duct where needed requires cautious and exact technique, but there is no doubt that it should be much more commonly done.

7. It seems an unwise provision of Nature that a secretion so necessary as that of the pancreas should be poured into the intestine in such direct association with the biliary system. No doubt the close association of these secretions, as well as their admixture, is purposeful. No better anatomical study of the relationship between gall tract disease on the one hand and disturbance of the pancreas on the other has been made than that of Dr. Angus Cameron and John Noble.* Bile refluxing into the pancreas through the duct of Wirsung activates trypsinogen, and so-called acute pancreatitis is the result. Extremely acute "gallbladder attacks" are apt to have a pancreatic increment, where it is very valuable to have a gallbladder left wherewith to drain.

8. There is much in Andrews' interpretation of acute gallbladders in terms of a chemical reaction rather than one of primary infection. Not uncommonly are seen tender epigastric masses,† indubitably enlarged gallbladders, which we see disappear and clear up without surgical intervention. This does not mean that one

should stand idly by and allow a very few gallbladders to perforate or to take the life of the patient by indirection, and no doubt simple drainage is occasionally imperative. The point is that the rapid disappearance of the acute phenomenon is consonant with edema (enormous dilatation of lymphatics, exudation or hemorrhage) rather than the typical sequence of bacterial infection.

9. Acute painless jaundice should direct our attention to the liver rather than its ducts. Slow, painless jaundice, which mounts and remains, should make us aware of probable obstruction. Liver function tests are too numerous to intimate that any are satisfactory. What we are after is to attempt to decide in the matter of obstruction whether our patient has one of four things: (a) obstruction from the stone, (b) from cancer in the ampulla or head of the pancreas, (c) from liver cell insult and resultant cirrhosis, or (d) in a patient previously operated upon, a common duct stricture. The problem is very difficult. We believe, after a rather limited use of the method at the Duluth Clinic, that Cecil Watson's‡ method of quantitative urobilinogen estimations of the total stool and daily urine yields direct and convincing evidence of not only what the liver is capable of screening out of the blood, but what passes the sphincter of Oddi as well. This test may be criticized because of its complexity and need of meticulous laboratory detail, but what is the use of a lot of so-called tests if the interpretation is confusing and the results no more conclusive than one's clinical judgment?

10. In this grouping a, b and d types of jaundice call for surgical exploration as soon as chronicity and persistence are established. The results may not be curative, but in a few cases a hidden obstructing common duct stone may be removed; theoretically at least an ampullar or duodenal wall carcinoma may be susceptible to excision. Where it is possible, a remaining gallbladder, to short circuit to the stomach or duodenum, may be extremely comforting. The bile is conserved for the body and an harassed liver allowed to function. Occasionally such a short circuiting may enable a pancreas head that feels like cancer to regress. In any case, we

*Cameron, Angus L., and Noble, John F.: Reflux of Bile up the Duct of Wirsung Caused by an Impacted Biliary Calculus. *J. A. M. A.*, May 3, 1924, Vol. 82, pp. 1410-1414.

†I recall such an instance, with massive tumor, occurring in a gifted and astute surgeon. For a few days he was indeed ill; then the whole mass disappeared, and with it his discomfort. This good man, who would be willing indeed to extract the ordinary individual's gallbladder, was thereafter even averse to having his own tested!

‡Watson, Cecil J.: Abstr. Jaundice, Univ. of Minn. Hosp. Staff Proceedings, Vol. 6, No. 28, 262-270, May 16, 1935.

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MYXEDEMA—ITS NERVOUS AND MENTAL MANIFESTATIONS*

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MYXEDEMA, although a time-worn subject, continues to be of interest from many clinical angles, the more so since the recent introduction of artificial hypothyroidism as a form of therapeutics. Furthermore, it is a worthwhile disease to reconsider, not only for the reason that we possess a cure, but also because of the lamentable fact that many patients are forced to see numerous physicians before a correct diagnosis is established. The main reason for this is that the possibility of this disease has simply slipped the mind of the physician. Occasionally, however, mental and nervous manifestations will dominate the clinical picture and at times make the diagnosis difficult.

Every case of uncomplicated myxedema presents a mental state the essential features of which are fatigability and psychomotor retardation. On account of this retardation it takes time and patience to obtain a correct history. Often more valuable information is derived from relatives or friends who have observed the slow metamorphosing of an alert, normal individual

into one who is fat, slow, "toad-like," lazy, placid and indifferent. Sensitivity to cold, easy fatigability, various aches and pains, loss of initiative, difficulty in concentration, progressive loss of memory, difficulty in making decisions, apathy, somnolence, listlessness, slow, monotonous and occasionally hoarse speech are customary and conspicuous symptoms of myxedema. These features, combined with the non-pitting edema, the swollen, stupid expression, the dry, coarse skin, and slow, clumsy gait constitute a picture when once seen is thereafter easily recognized. This situation is illustrated in the following case of Dr. F. A. Thompson's of Saint Paul, who had made the diagnosis, and knowing my interest in myxedema invited me to see the patient and has kindly allowed me to report the mental and general physical findings. The cardio-vascular features of this case will be reported elsewhere by Dr. Thompson.

Case 1.—Mrs. W., aged fifty-four, is a married woman whose past and family history are essentially negative.

Her ill health began in 1927 with loss of strength

*Read before the annual meeting of the Minnesota State Medical Association, Rochester, Minnesota, May 6, 1936.

which exhibited itself by her becoming easily tired and having weak spells, off and on. She developed pain in the right leg and a physician diagnosed it as sciatica. She subsequently was operated upon for varicose veins. She noticed that she became sensitive to cold, until finally she was always chilly, so much so that even when she used more covers and kept the house at 90 degrees she was still chilly. Her weight increased approximately thirty to forty pounds. Her face and eyes were puffed; her hands and feet became swollen and her skin dry and rough; her tongue became large and thick; her hair became dry and much of it fell out; she had shortness of breath; she felt discouraged and depressed and cried easily; she became weaker and "it was awful hard to do things." She finally could not do her housework. Her memory became progressively worse. She would be talking and would forget what she was talking about. She would become confused in her choice of words. This became so noticeable that her grandchildren teased her about it. She slept a lot. In addition, her gait became clumsy. She would wander off and get lost a few blocks from home. On a few occasions she fell down and had to be picked up and brought home. On walking, she had the sensation of going down hill. Her main activity finally became what she described as "sitting and thinking," but she could not remember what she was thinking about.

This clinical picture developed slowly and reached its height about two and one-half years ago. She was treated for anemia at intervals during this time.

In 1934, Dr. Thompson saw her, diagnosed the condition, and prescribed appropriate thyroid therapy. In addition to the findings of myxedema she had a minus 27 B.M.R. and a typical heart condition, which Dr. Thompson will report in detail. She made a prompt improvement and final recovery. Last summer she discontinued thyroid for three months. She gained ten pounds, her face began to puff, her throat became dry, she began to be retarded and she said she began again to "sit and think."

In considering the mental states accompanying myxedema, two considerations must be borne in mind. First, that psychic manifestations may exhibit themselves before the classical physical appearance has been established. Second, the mental symptoms and reactions may be mild, but on the other hand they may be so severe that a physical examination may be difficult and a B.M.R. almost impossible. Unless these possibilities are understood, this condition may be mistaken for mental derangements varying from neurasthenia to severe types of psychosis, such as mania, melancholia, and schizophrenic reactions characterized by delusions of persecution and hallucinations. Also in elderly patients with arterio-sclerosis the impaired cerebral circulation may be further augmented by the myxedema,

thereby giving rise to symptoms simulating definite organic neurological conditions, such as brain tumor, hemiplegia, etc. It is, therefore, pertinent to determine, if possible, whether the situation is secondary to thyroid insufficiency, or merely a coincidental concomitant. Cases have been reported in which a psychosis of a schizophrenic pattern has seemingly been initiated by myxedema, and in whom thyroid cured the myxedema, but not the psychosis. The first criterion, therefore, in the diagnosis is to establish the fact that a myxedema is really present. This can only be done when definite physical signs are found in combination with a lowered B.M.R. Means and Lerman have shown that myxedematous symptoms do not appear until the B.M.R. approaches minus 30, although the converse is not true. The next step is attempting to eliminate the condition by thyroid therapy. If the mental symptoms are part of the myxedema, improvement and relief should be obtained by the establishing of a normal B.M.R. for a reasonable length of time.

The psychic manifestations in myxedema are varied in character and degree. So far no definite type of psychosis has been established. To the fundamental sluggishness of thought may be added symptoms depending upon the degree and extent of the thyroid insufficiency, the inherent mental and constitutional elements, and the personality reactions of the patient. In addition to these important biological factors, environmental stresses and strains incidental to modern everyday existence often contributes definite influences to the shaping of the mental picture. For these reasons people are not alike in their reactions to depression of thyroid function. Irritability, confusion, depression, clouding of consciousness, and excitement are common features. Delirium with vivid visual hallucinations, delusions of persecution, convulsions, stupor, and apparent dementia are the severe forms often reported. The predominant type found in the literature seems to be that of a confused excitatory one which progresses to delirium with visual hallucinations and unsystematized delusions of persecution. Wagner Von Jauregg, according to Akelatis, believed that in all cases in which the myxedema was not treated the psychic disturbances finally developed into a confused hallucinatory state or dementia.

The following case showed myxedema accom-

panied by mental sluggishness, episodes of excitement, confusion and feelings of resentment:

Case 2.—A woman, aged forty-eight, single, a housekeeper, had a family history and past history which was essentially negative. In 1921, or 1922, she had noticed various aches and pains in her abdomen and lower extremities. Later she complained of tiredness and loss of strength. Her weight increased moderately. Sensitivity to cold had been present for the past two years. Her memory for recent events diminished and concentration became difficult. These symptoms gradually progressed until the winter of 1925, when spells of confusion accompanied by excitement appeared. In March, 1926, she had reached a state in which it was very difficult to do her work. She had spells of confusion. Her memory had been so bad at times that it was noticed that she forgot where she placed her comb while combing her hair. The situation was climaxed one night by a spell of excitement, during which she had to be forcibly restrained and was controlled with difficulty, and she was considered by her relatives and physician to be suffering from hysteria. At this time she came under the care of the late Dr. Arthur Sweeney and myself and was removed to our Convalescent Hospital.

We found her confused, mildly excited and resentful towards her brother for his attitude towards her. She had no hallucinations or delusions, and she was oriented as to time and place. She became very apathetic and listless soon after admittance. On examination, non-pitting edema of the face, hands and lower extremities was found. The skin was dry, scaly, and had a leathery feel. The hair was sparse. Her expression was rather stupid. Mentally, she was very sluggish. Her concentration was poor. Her speech was slow.

On account of the mental sluggishness and retardation, the non-pitting edema, the dry, coarse skin, and the general picture of a moderate myxedema, desiccated thyroid in one grain doses was administered three times a day. She made a prompt improvement. Within a short time she became alert, the edema disappeared, her weight decreased and she returned home in three weeks. She has remained well, except for a mild return of her former symptoms, in 1929, on discontinuance of thyroid. She finally was taking only one-half to one grain daily. She was last seen by one of us in 1930, but is known to be in good health.

Extraneous and environmental influences which help shape, complicate and precipitate a mental upset in a case of hypothyroidism showing beginning symptoms of myxedema is illustrated in the following example:

Case 3.—A married woman, aged twenty-eight, was admitted to the psychiatric ward at the Ancker Hospital, February 29, 1936, with a diagnosis of melancholia. She had been seen five times in the Out-Patient Department since January 7, 1936, complaining of bloat-

ing, epigastric pains after eating, nausea after meals, irregular and scanty menstrual periods since the summer of 1935, and an amenorrhea since November.

At the hospital, the following history was finally obtained. Her past history was essentially negative until three years ago. She was a stenographer and was married at the age of twenty-one. She was an outward type of person, worried occasionally over financial matters, was the dominant influence of the home, ruled her husband with an iron hand, and was active and energetic. Three years ago she developed pains in the lower abdomen. The sexual act became painful, and her libido decreased. In October, 1934, the right ovary, tube and appendix were removed. Soon after this she noticed her voice was becoming lower pitched. Her marital trouble had gone from bad to worse until, in May, 1935, she separated from her husband on account of infidelity and drink on his part. During the summer of 1935 her strength diminished, and she said she had no "pep." In addition, she was depressed. She had excessive flowing in September and October, and twice in November, and no periods after that. During the fall, her strength diminished, her depression deepened, she was very sensitive to cold, her concentration was poor and her memory was gradually being affected. In December, no period having appeared, she became convinced she was pregnant and she threatened to commit suicide. The idea of pregnancy persisted, she became melancholic and showed increasing mental and physical retardation until admitted to the hospital.

We found that she also had increased in weight during the past four months, especially around the hips and abdomen. Her hands and feet had seemingly increased in size. Puffiness of the face had developed. Her skin had become dry. She also complained of pain in the left lower quadrant and epigastrium with no particular reference to meals.

On examination we found she responded slowly to questions. Her mental reactions were retarded. She appeared very dejected, meek and melancholic. She was somewhat confused and seemed rather in a daze. She was certain that she was pregnant, even after three examinations by a consultant gynecologist, who found no signs of pregnancy. Her concentration was poor, and she was apathetic and listless.

Physically, her face and eyes were puffed, giving her a moderately swollen, stupid expression. The skin was slightly yellowish in color and was dry and coarse. There was non-pitting edema of the hands and lower extremities. Tenderness was present in the left lower quadrant of the abdomen. Her blood pressure was 94/50; pulse 68.

The general physical and neurologic examination otherwise was negative.

The laboratory findings were:

Basal metabolic rate: March 8, minus 31 per cent; March 10, minus 37 per cent; March 19, minus 21 per cent; April 14, minus 19 per cent; and April 21, minus 4 per cent.

Urine: Normal.

Spinal Fluid: Normal; Wassermann negative.

Blood: Hgb. 80; w.b.c. 6800. Differential count normal; sedimentation, 7 mm. for one hour; blood Wassermann negative; blood sugar, 95 mmg. per 100 c.c.; blood calcium, 10.8 mg. per 100 c.c.

Cervical smears, negative.

X-ray: Barium enema revealed a normal colon. Gastric and duodenal studies were negative. X-ray of the skull gave negative findings.

A diagnosis of hypothyroidism with myxedema, amenorrhea and marked depression was made.

Course: The patient was placed on one grain of desiccated thyroid and ten grains of calcium lactate, three-times a day. She immediately noticed a disappearance of her chilly feelings, her mental reactions became quicker, the edema gradually disappeared, and her weight diminished from 125 to 120 pounds in ten days.

After taking thyroid for about two weeks it had to be discontinued for a few days on account of headache and vertigo. Her metabolic rate rose from minus 37 to minus 21. Her depression quickly disappeared and she felt entirely different mentally. Her voice regained its former pitch. Her appearance has changed from a melancholic, expressionless, dull looking person to an alert, wide-awake woman. She has finally become convinced that she was not pregnant. Her periods have not returned. She finally admitted that, on a few occasions, she had been exposed to the possibility of pregnancy sometime in August or September. The mental picture, therefore, was definitely shaped and augmented by dynamic emotional factors. Her basal metabolic rate is now minus 4, all signs of myxedema, both physical and mental, have disappeared and no depression remains.

Case 4.—An unmarried woman, fifty years old, was admitted January 31, 1936, to the Nervous and Mental Service of Ancker Hospital for observation. She had attended the Out-Patient Department off and on since July, 1934, for a variety of complaints and symptoms. Her diagnosis was hypopituitarism and hypothyroidism.

The essentials of her past history are the following: She never has had a menstrual period, nor has there ever been any axillary or pubic hair. She grew very little until she was eighteen years old, at which time she was three feet, ten inches tall. From that time until she was twenty-eight she attained a height of five feet, one inch. She went as far as the eighth grade in school and always learned quite easily. She has always tolerated cold weather poorly. For the past ten years she has noticed an increased tendency for her skin to be wrinkled and dry.

Her family history is essentially negative. No similar condition exists in her family as far as she knows.

On June 11, 1935, her complaints were listed as palpitation, edema of the ankles and shortness of breath. On examination the following positive findings were recorded: Skin is wrinkled, thickened and there

is rather marked puffiness about the eyes. No secondary sex characteristics. Tongue is thickened. Breast is infantile type. Heart slightly enlarged, tones distant, no murmurs, regular rhythm. There is a marked venous congestion of chest and thighs. Abdomen showed liver two fingers below costal margin. Genitalia showed no pubic hair, infantile labia, vagina would not admit one finger. Extremities showed puffiness of hands and feet. Non-pitting edema. Blood pressure was 102/60; pulse, 64; weight, 103; B.M.R. minus 39. Blood—Hgb. 63; r.b.c. 3,520,000; w.b.c. 6700.

She made numerous visits until November 16, 1935. Pituitary whole gland extract, digitonin, ammonium chlorid and occasional small doses of thyroid were given.

She was not seen from November 16, 1935, until January 31, 1936, when she was admitted to the Nervous and Mental Service on account of being apparently psychotic.

On examination we noted the following: She was well nourished, but poorly developed. The hair was fine and very dry. Eyebrows and lashes were sparse. The skin was dry and leathery. There was puffiness of the face and eyes. There was a yellowish color of the skin over the malar prominences. The nose and lips were thickened. The tongue was very large and thickened. Eye grounds showed definite evidence of arterio-sclerosis. The thyroid gland was not palpable. Heart tones were distant. Abdomen was normal and liver was not palpable. Her breasts were not developed. There was no axillary or pubic hair. The labia were infantile in type. Vaginal orifice does not admit one finger. The extremities showed puffiness of hands and feet, more marked around the ankles. This swelling was non-pitting. The skin of the extremities was very dry and coarse.

Mentally she was disturbed because she thought she was being watched, that people were talking about her, that someone would harm her, that everyone noticed her. She knew that she was not quite normal and it was on account of this that she was being persecuted. Her mental reactions were retarded. She spoke slowly and seemed to have great difficulty in concentrating. Her delusions were not systematized. There was definite mental confusion, but she was oriented as to time and place.

The laboratory findings were as follows:

The basal metabolic rate was: June 11, 1935, minus 39; February 6, 1936, minus 20; February 24, 1936, minus 18.

Urine: Normal

Blood: (2-14-36) Hgb. 78; r.b.c. 4,200,000; w.b.c. 6700; blood Wassermann negative.

X-ray of skull was normal. X-ray of chest showed normal heart and lungs.

Electrocardiogram showed flattening of T waves in lead 1 and 2.

A diagnosis was made of myxedema with a pluri-glandular disorder involving, mainly, the pituitary and thyroid.

Course: The patient was immediately placed on one grain of desiccated thyroid three times a day. She promptly became alert and improved mentally so that within a few days the ideas of persecution disappeared. The dose of thyroid was doubled, but this caused her to be nervous and dizzy.

She was discharged on February 29, 1936, and ordered to take two grains of thyroid daily. She was seen in the Out-Patient Department, March 24, 1936, and April 23, 1936. She is now working as an assistant bookbinder and is well.

Conclusions

1. Mental and nervous manifestations in myxedema consist of mental retardation plus a variety of symptoms depending on the degree and duration of thyroid insufficiency and individual characteristics and reactions.

2. These symptoms may occur before the classical appearance of myxedema has fully developed and has thereby dominated the clinical picture.

THE CLINICAL IMPORTANCE OF HYPOTHYROIDISM

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DUE to the recent advancements in knowledge regarding the glands of internal secretion, it would seem advisable to once again bring before the practitioner the clinical importance of hypothyroidism. It is easy to believe that in certain conditions the newly discovered hormones seem to be the medication of choice, and one might be inclined to neglect the activities and functions of the thyroid gland.

Several reasons justify this paper: (1) the ignorance of when and how to prescribe thyroid; (2) its preëminent usefulness when properly prescribed; (3) the fear on the part of some to use this hormone; and (4) the exaggerated warnings concerning the danger in its use. Inexperience in the use of this medication is where the danger lies. Of course it is generally known that thyroid substance is indicated in myxedema, the existence of which, by the way, the physician usually fails to recognize. Hardly another disease can be mentioned wherein such truly miraculous changes can be wrought, and hardly another ailment can be thought of which is so consistently mistaken.

Myxedema fully developed is relatively uncommon but probably less so than is generally supposed and it is altogether likely that many victims are permitted to pursue the natural course of the disease, sometimes unto death, without ever receiving the amazing relief so easily administered. If this be true for outright myxedema, and it is true, how indefinitely more so does it hold true for the more frequent but less characteristic milder grades of hypothyroidism.

Symptoms

Not long ago Lisser and Anderson¹ called attention to the widely differing symptoms and clinical findings in myxedema in women. The patient may not look myxedematous at all and the dominating complaint for which he or she seeks relief may readily lead the consultant astray. Indeed the bothersome symptom may urge the patient to a specialist, an ophthalmologist, otologist, rhinologist, gynecologist, allergist, cardiologist, psychiatrist, dermatologist or gastro-intestinal expert, rather than the internist or general practitioner (not to mention the omnipotent osteopath).

Circulatory Phenomena.—Myxedematous patients complain of tiring easily on relatively slight exertion. Many observers have shown conclusively that dyspnea, orthopnea, fatigue and other signs and symptoms of cardiac disease may dominate the clinical picture and be treated accordingly when the fundamental cause is deficient thyroid secretion.

The term "myxedema heart" was introduced by Zondek in 1918. Fahr¹⁴ in 1925 published the first paper concerning it in this country. The consensus of the best informed opinion stresses a general enlargement of the heart in myxedema. After thyroid medication the size of the heart, in most cases, undergoes a progressive shrinkage, which reaches its maximum as a rule in three to six months.

The electrocardiogram is almost always abnormal, the most constant finding being a flattening or inversion of T waves especially in Lead

II. T inversion is in all three leads and its conversion into upright waves as a consequence of thyroid administration has been reported by Willius and Haines.³¹ Abnormal axis deviation, small P wave, notched and widened QRS complexes are common. On thyroid treatment many of the abnormalities disappear wholly or in part.

The blood pressure is often elevated and systolic and particularly diastolic pressures tend to fall under treatment.

Fahr³⁴ considers the shape of the myxedema heart unique; all chambers dilate equally which differentiates the contour from the characteristic "sock" shape found in aortic disease and hypertensive heart.

Gastrointestinal Phenomena.—It is hardly to be expected that so commonplace a symptom as constipation should arouse a suspicion of hypothyroidism. Its antithesis, diarrhea, occasionally complicates hyperthyroidism, but stubborn constipation is even more characteristic of inadequate thyroid function, both in children and in adults; and in the former and in women in the late forties and fifties may be sufficiently intractable to warrant the term, obstipation.⁸ This atony of the bowel musculature responds very nicely to thyroid extract.

Digestive disturbances associated with definite subacidity or even achlorhydria are occasionally the result of marked hypothyroidism or myxedema,^{8,21} especially in patients with basal rates below minus twenty. The findings of achlorhydria and pronounced anemia, even with a high color index should not blind one to the suspicion of an underlying thyroid deficiency.²³

Barbour² in a paper on the diathesis of infancy, reports both immediate and permanent relief from such digestive symptoms as vomiting, intestinal colic, flatus and constipation, by doses of $\frac{1}{8}$ or $\frac{1}{4}$ grain dessicated thyroid with or preceding feedings. Infants seem to require relatively larger doses of thyroid than would be estimated on the comparative basis of weight. One should remember also that hypothyroid children may react with considerable toxicity. Frequent loose stools follow overdosing.

Anemia.—A patient whose appearance is not arrestingly hypothyroid may consult the physician because of weakness and weariness. Unless leading questions are asked or minor suggestive signs are noticed, a routine blood count may satisfy both patient and physician by revealing

a moderate anemia, ordinarily of the secondary type. Iron and liver therapy will be instituted, maybe a search for infectious foci undertaken, with never a thought of an underlying deficiency of the thyroid hormone.

Lerman and Means²¹ found anemia more common in myxedematous patients with anacidity than in those showing free acid in the gastric juice in a study of fifty-two cases of myxedema. Their experience leads them to advise the use of iron in addition to thyroid for secondary anemia (hypochromia). The addition of liver is unnecessary in this group.

Arthritis.—It is desirable to investigate the possibility of thyroid underactivity in patients who complain of aching, stiffness, rheumatism, neuralgia, and arthritis. A far greater number of but mildly hypothyroid, somewhat obese, individuals are annoyed by aching limbs or joints.

Sampayo and Morales²⁷ report definite improvement from thyroid extract in acute polyarticular rheumatism, either with or without the use of salicylates. They found that the combined therapy permits much larger doses of thyroid than can be tolerated otherwise.

Gynecologic, Obstetric and Urologic Phenomena.—We must not underestimate the significance of fibroids, polyps, cancer and endometrial hyperplasia, as causes of menorrhagia and metrorrhagia. We must deplore, however, the tendency to ignore hypothyroidism as an important and not infrequent causative factor. This hypothyroid menorrhagia may occur at any age between adolescence and the menopause, but is more frequent at puberty or in the thirties and forties. McCarrison,²⁴ Bell,³ Falta,¹⁵ Verco,²⁰ Crotti,¹⁰ Berkely,⁴ Kern,²⁰ Lissner,²² Isbister,¹⁹ Cooke,⁹ Lissner and Anderson,²³ and Breckinridge⁶ have testified to the gratifying relief of excessive uterine bleeding by administration of thyroid extract, when this symptom has depended on thyroid inadequacy.

Thyroid treatment must be continued indefinitely and dosage controlled by clinical observation and basal metabolic rate determinations.

Some writers have suggested that amenorrhea, frigidity, sterility, habitual abortion or miscarriage, premature labor and death of the fetus may be induced occasionally by thyroid failure, and that the percentage of reported success from thyroid feeding demands further and more general clinical applications.

Eye, Ear, Nose and Throat Phenomena.—Puffiness of the eyelids, especially the lower lids, constitutes one of the most conspicuous and characteristic signs of myxedema.

Weiss and King²⁰ report twenty-six patients with varying degrees of swollen lids and more or less hypothyroidism. Their ages varied from eighteen to fifty-nine years, only four were males, 25 per cent were underweight and 35 per cent overweight. One patient had suffered from severely swollen lids for five years, but had no other complaints, nor were there any other findings except a blood pressure of 210/100 and a basal metabolic rate of minus twenty-six. Under thyroid therapy the blood pressure dropped to 150/80 and the lid swelling vanished.

Pronounced impairment of hearing is by no means uncommon in hypothyroidism and myxedema. A colloidal infiltration of the nasal and Eustachian mucous membranes may account for this.

Giddiness, vertigo sometimes associated with a swimming sensation or with vomiting and loss of consciousness (a Meniere complex), is encountered now and then, Tinnitus aurium is common in the form of buzzing, roaring, whistling or shrieking noises, while such patients sometimes experience even more serious sensory disturbances, as the hearing of voices or the ringing of bells.¹¹

The "saddle-nose" of childhood myxedema should always attract notice in a Caucasian. It bears some resemblance to the nose of congenital lues, achondroplasia, and retrouse, with protruding nostrils.

Baggy nasal mucous membranes produce mouth-breathing, snoring, and snuffles. Similar thickening of the tongue interferes with articulation. Myxedematous infiltration of the larynx results in the deepening of the voice. If the patient happens to be a female the voice acquires a masculine timbre. A laryngologist may be consulted, or the family physician, because of a "protracted cold," such being the interpretation of the chronic hoarseness.

Dermatologic Phenomena.—The patient may comment on the roughness and dryness of the skin and the absence of perspiration due to hypofunction of the sebaceous and oil glands.

Sensitiveness to cold is highly characteristic of myxedema. An unbearable chilliness of the entire body may be complained of and is

abundantly confirmed by an array of extra clothing. Extra blankets are required at night.

Alopecia is sometimes a consequence of a hypofunctioning thyroid. When such is the case, a remarkable restoration of hair can be produced by thyroid feeding. Lisser²² reported a remarkable example, with "before and after" photographs. This was a man thirty-eight years of age, almost totally bald, with basal rate of minus 45. Usually the eyebrows and eyelashes become sparse, especially in the outer halves.

The nails are often coarse and cracked and show longitudinal grooves and transverse ridges.

The teeth may share in these trophic disturbances. Dental caries are extremely common in hypothyroidism. Delayed eruption of the teeth is a highly characteristic finding in childhood hypothyroidism and is merely another phase of the osseous retardation so typical of this condition.

Psychiatric and Neurologic Phenomena.—Mental torpor is not only evident to the examiner but complained of by the patient who is painfully aware, at least in the early stages, of the increasing difficulty of mental effort. He finds himself forgetful and is annoyed by a progressive loss of memory; he is unable to concentrate as well as formerly; any sustained attempt to thinking, reading, writing or listening is impossible; his attention wanders and the train of thought is lost.

Metabolic and Allergic Phenomena.—Since adult myxedema or hypothyroidism affects an individual whose growth is already complete, an arrest of skeletal development must be confined to pre-adolescent thyroid inadequacy. The degree of dwarfism may be slight or extreme, depending on the age when thyroid failure began and on its severity. A mildly hypothyroid child need not necessarily be short, especially if the deficiency has its onset in late childhood, but an infant with myxedema invariably is. Talbot has shown that the head, chest and abdomen appear disproportionately large to the eye, but that the circumferences are actually close to the normal for the age. The arms are decidedly short and the striking dwarfism of this disease is mostly due to the shortness of the legs and less to the shortness of the trunk as occurs in achondroplastic dwarfism.

Obesity without hypothyroidism is common; hypothyroidism without obesity does occur; but

obesity and hypothyroidism are frequently encountered together. Indeed a moderate degree of corpulence is highly characteristic of inadequate thyroid function. The overweight usually amounts to from 10 to 20 pounds in a child, and from 15 to 35 pounds in an adult. True thyroid adiposity (which, by the way, probably consists mainly of myxedematous infiltration rather than fat) rarely reaches huge proportions. Tremendously fat individuals, 70 to 150 pounds overweight, owe their obesity to other causes than pure thyroid deficiency, although there may be at times a minor hypothyroid component.

The association of diabetes mellitus and myxedema is exceedingly rare. That a complicating hypothyroidism may render insulin less active is reported by Hendry.¹⁷

Allergic states, such as hay fever, vasomotor rhinitis and asthma are occasionally associated with and seemingly dependent on deficient thyroid function.

Thus Shelton²⁸ reports familial hypothyroidism in a family of six, the mother and four children being afflicted. The mother, between sixteen and forty years of age, had suffered mildly from attacks of asthma and quite severely from recurrent hay fever, both of which vanished permanently upon taking thyroid extract. Her basal rate was minus 42 per cent.

Animated controversy continues concerning the merits, demerits, futility, or danger of utilizing thyroid extract in the treatment of nonthyroid obesity. It is probably only fair to state that the most respected opinion denounces its use for this purpose. The purchase of thyroid substance, or preparations containing it, by the laity, without prescription, and without proper medical supervision, should be prohibited by law. But that any properly trained physician should be afraid of it is tantamount to admitting that he is not properly trained, for it is one of the easiest drugs to control, both by clinical observation and laboratory checks.

Laboratory Aids

(a) *The Basal Metabolic Rate* is generally regarded as the "guiding star" of thyroid diagnosis.

Basal rate determinations are rarely practically necessary for the recognition of thyrotoxicosis or hyperthyroidism, but they are of considerably greater value as an important aid in uncovering hypothyroidism. Many times even the experi-

enced clinician will be grateful for a markedly subnormal rate which clinches a diagnosis for him which was but tentatively entertained or perhaps hardly suspected. A more, frequent resort to basal rate determinations would not be a waste of the physician's time or the patient's money. The information obtained would not compare unfavorably with that supplied by the customary routine urine examination, blood count, and blood Wassermann.

But let it be added at once that blind acceptance of a basal rate report may lead to serious error. Beware of the spurious accuracy of tests expressed in percentages and decimal points. There are many pitfalls in the actual execution of the test, for although it is achieved by a machine, it is performed on a human being by a human being. The physician must be self-respecting enough of his clinical legs to stand on them firmly, and not be swept off his feet by a laboratory test. If the rate conflicts with his clinical findings and impressions he must discount the test or insist on its repetition.

Many writers have cautioned against attributing all low rates to hypothyroidism. Indeed, Youmans and Riven³² consider the response to thyroid therapy as of even greater importance since the thyroid hormone is almost specific for true hypothyroidism. Blumgarten⁶ calls attention to constitutional asthenics with low basal rates who are often rendered toxic rather than helped by thyroid feeding. Malnutrition, starvation, Addison's disease, hypopituitarism and eunuchoidism, may be associated with a subnormal basal rate often without a secondary hypothyroidism to account for it. Indeed Blumgarten goes so far as to state that basal rates of minus 20 per cent may be found in children between eight and fourteen years of age without evidence of hypothyroidism; and that juvenile exophthalmic goiter may present a conventional normal rate. We may not be inclined to agree entirely with these latter statements, but they appropriately introduce the perplexity of basal standards in children. Basal tests in boys and girls are helpful but not as reliable as in adults.

Perhaps even more surprising is a report by Morris of four patients with definite signs of thyrotoxic circulatory disturbance, whose basal rates ranged from minus 32 to plus 7, with clinical recovery in all from subtotal thyroidectomy.

Despite all these handicaps, reservations, and uncertainties, the basal metabolic rate, properly done and wisely interpreted, remains an immensely valuable aid in diagnosing hypothyroidism, with or without myxedema.

(b) *Roentgenographic Determination of Bone Age*.—Inasmuch as respiration chambers are not generally available for basal metabolism estimations in infants and the ordinary machines cannot be utilized for children under five or six years of age; and, since the standards for older children are not altogether accurate; and lastly, since most infants and many children suffering from myxedema or moderately severe hypothyroidism are mentally deficient and, therefore, unable to cooperate in the performance of a basal test—for all these reasons it is fortunate that another technical procedure is available and of extraordinary usefulness in recognizing pre-adolescent thyroid deficiency, namely, the determination of osseous age by roentgenograms. One of the most striking evidences of skeletal retardation is seen in the delayed appearance of the various ossification centers and in the late union of the epiphyseae. Dieterle's table of normal order of these centers in the hands was a convenient first step in the skiagraphic diagnosis of childhood myxedema. Engelbach and McMahon¹² deserve especial credit for elaborating this chart to include the entire body. Every roentgenologist and every physician doing his own roentgen-ray work should possess these tables, which include the ages when the ossification centers or bone nuclei normally appear and when the epiphyseal lines normally unite. There is also charted for each age year, the bones of the skeleton which should be filmed.

(c) *The Blood Cholesterol*.—Epstein and Lande,¹³ Hillmann,¹⁴ Mason, Hunt and Hurxthal¹⁵ found low cholesterol values in adult hyperthyroidism (average, 130) and high values in adult hypothyroidism (average, 230). The latter writers concluded from their study that cholesterol reflected better the severity of the hypothyroidism and the true clinical condition than does the basic metabolic levels. Cases with low basal rates without clinical myxedema gave normal cholesterol values. Bronstein,⁷ desirous of an additional method of diagnosis and another guide to treatment, applied cholesterol determinations to infants and children. The normal reading for children is 190 plus. In twelve

thyroid deficient children the cholesterol values ranged from 277 to 782. Thyroid therapy definitely lowered the blood cholesterol in these cases, in addition to raising the basal metabolic rate and effecting clinical improvement. He believes that the use of cholesterol as an aid in the diagnosis of childhood hypothyroidism and the regulation of thyroid dosage, offers definite possibilities.

Treatment

At the outset it would seem prudent to state emphatically (though an apology seems in order for something so utterly obvious) that thyroid substance should never be administered to an individual who is already suffering from too much of it. It would appear unnecessary to insert such a warning were it not for the fact that some of the loose thinking and writing on endocrinology during the past twenty years has included the ingenuous, but ridiculous, idea that whenever an endocrine organ gives evidence of illness, its respective extract should be prescribed. This procedure has been fortified by weird pluriglandular mixtures (containing much inert material but usually a little thyroid) with the pleasant fancy that the body will select those ingredients which it needs and reject those of which it has enough or too much—an astounding doctrine! Let anyone beware of administering thyroid to a patient suffering from hyperthyroidism. Thyrotoxicosis demands reduction of thyroid secretion, not addition of thyroid substance.

Many pharmaceutical firms offer excellent preparations of thyroid substance in tablets of various dosage, or in powder form for inclusion in capsules. Some tablets are coated with keratin for the purpose of avoiding any deleterious effect from the gastric juices. That any material advantage accrues from this is dubious since thyroid has always yielded satisfactory response on oral administration. Thyroxin is available and reliable but whether it is to be preferred to the ordinary desiccated thyroid is questionable. Some feel that the former is superior; others claim that the latter is quite as efficacious if not more so. For instance, Rose¹⁶ utilizes both, considers their action very similar but sometimes finds it necessary to substitute one for the other to obtain satisfactory results. Helfors¹⁶ found an increase of 1 per cent in the

basal metabolic rate from $\frac{1}{4}$ mg. thyroxin (Henning), 1 mg. thyroxin (Roche), 2 mg. thyroxin (Shering) and 1 tablet thyreodin (Merck).

Mention should be made of one firm's custom of basing its thyroid tabloid dosage in grains of the fresh substance, whereas most American firms label their product in grains of desiccated extract. This of course has nothing to do with the perfectly good potency of either preparation, but it is immensely important to be aware of which brand is prescribed. One grain of the desiccated thyroid is equivalent to approximately 5 grains of the fresh substance. Tiny doses should be used for little children and the desiccated dosage desirable when larger amounts are needed.

It probably makes little difference which brand of thyroid, thyroxin, thyreodin, or thyraclin, etc., the physician selects, since all of them are potent, so long as he adheres pretty well to one of them and becomes familiar with its action. There is such a thing in clinical practice as "getting the feel" of a preparation, and from long experience gauging fairly accurately the appropriate dose for a given degree of thyroid deficiency in a particular type of patient.

In commencing thyroid feeding it is prudent to be circumspect, beginning with a relatively small dose such as $\frac{1}{2}$ grain of the desiccated substance once or twice daily. If no untoward symptoms develop after two weeks the amount may be doubled and this same procedure repeated in another two weeks, and so on, depending on the results to be obtained, the reaction of the patient, and the response of the basal metabolic rate.

At first thought one would expect to be guided in estimating the proper dosage by the depth of the basal rate; that is to say, the more subnormal the rate, the larger the dose; but this concept is quite erroneous. Indeed the opposite is more nearly correct. The greater the basal depression and the more profound the myxedema the more delicate the response to thyroid substance.

It is possible by the injection of a single dose of thyroxin, to raise the basal rate 20 or 30 per cent within a few days, but such an abrupt sudden rise produces a terrific upheaval in the patient which is neither pleasant nor necessary. The patient has been vegetating on a low cold plane of vitality, probably for a considerable time, unless the hypothyroid state followed

swiftly after subtotal thyroidectomy. He should be stepped up gradually into the warmer atmosphere, over a period of weeks, and allowed to thaw out.

The following symptoms should excite suspicion of overdosage: nervousness, excitability, irritability, insomnia, excessive perspiration and feeling of heat, palpitation and dyspnea, subjective sensation of pounding and racing heart action, diarrhea, scanty menses or prolonged menstrual intervals, especially if these symptoms are new phenomena, or, having existed before are now materially increased. The appearance of any one of a number of these constitute a signal for decreasing the dose, and still better, discontinuing thyroid entirely for a few days or a week. There is no occasion for alarm on the part of either patient or physician, since the disagreeable symptoms will promptly vanish in three days to a week, unless the toxic state has been permitted to continue for many weeks before a halt was called. After the toxic manifestations have subsided thyroid should be resumed but, of course, at a lower dosage than the amount which provoked the toxic symptoms.

Granted that myxedema or milder hypothyroidism exists and requires treatment, how long must thyroid substance be administered? Again, no single reply is applicable to all cases. But it may be said that the great majority of patients with outspoken adult or childhood myxedema must continue taking thyroid for many years and perhaps for life. In such cases thyroid feeding is supplemental, and only rarely does the patient's gland recuperate sufficiently to function normally without outside assistance. In other words thyroid therapy is not a cure in the sense that its administration for a few weeks or months produces complete recovery.

The so-called "maintenance dose" may not remain the same permanently; the gland may recover somewhat and not continue to require as much assistance; or, on the other hand, some intercurrent infection or complication (as in diabetes mellitus) may strain its function still further necessitating additional dosage. For the above reasons it is wise to keep an occasional eye on the patient and not discharge him permanently.

Finally, in the present state of the public apprehensiveness regarding thyroid, the physician must be prepared to expect blame for almost

any symptom which appears while the patient is taking thyroid. Utilizing the art of practice he will accept this situation calmly and compromise with the patient by reducing the dose or omitting thyroid entirely for a week in order that the patient and physician may satisfy themselves as to whether the complaint is or is not ascribable to the thyroid substance. Occasionally he may be surprised to find that it is.

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GASTROSCOPY, ANOTHER METHOD OF EXAMINING THE STOMACH*

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THE examination of the stomach for the purpose of diagnosis has been carried out in various ways. The earliest method, that of palpation and inspection of the abdomen, although it undoubtedly aids at times, is of very little value in the early diagnosis of gastric lesions. By the time that a lesion of the stomach is demonstrated by inspection or palpation, it is large and far advanced. The diagnosis of carcinoma by this method is practically always too late to allow any effective therapy. This method was later supplemented by the stomach tube through which specimens of gastric contents could be removed for analysis. The presence or absence, increase or decrease, of free HCl acid may aid in making a diagnosis but we all know that this method is

unreliable. We have all seen carcinomas with abundant free HCl and ulcers with no free HCl. The presence of coffee colored material often aids in the diagnosis of carcinoma but this also usually indicates far advanced lesions. The same may be said for the other chemical tests on the gastric juice. To be sure, this method is of great value in the diagnosis of obstructive lesions in the stomach but these make up only a small percentage of gastric lesions.

The advent of the x-ray with the bismuth or barium meal marked a great step forward in the diagnosis of gastric lesions. There is no doubt but that this method is still the most important in the diagnosis of ulcer or carcinoma of the stomach. The x-ray in the hands of a skilled and experienced roentgenologist has a very high percentage of diagnostic accuracy in this field.

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At the present time it is the best single method for the examination of the stomach and can not be supplanted by any other method. However, a new method of direct visualization, gastroscopy, has been recently developed, which method not only aids the x-ray in certain fields of gastric diagnoses, but also actually supersedes it in some fields. It must be stated, however, that gastroscopy can never supplant the x-ray in gastric diagnosis. It merely supplements this method of examination. In certain fields such as gastritis and erosions, gastroscopy is the method of prime importance, for all gastroscopists are agreed that the roentgenologist cannot diagnose these lesions with any degree of accuracy. It is also very probable that earlier diagnoses of carcinoma of the stomach can be made by gastroscopy in certain cases than can be made by the x-ray.

The need for a direct visualization of the stomach was early felt. Direct visualization is the method of the pathologist in diagnosing lesions of the stomach and is on the whole the most accurate. Mikulicz³ in 1881 was able to obtain a view of the stomach through a rigid pipe and at that time he observed the action of the pyloric canal. Since that time various types of gastroscopes have been developed. At the present there are four types of instruments. The first type is the open tube scope as advocated by Chevalier Jackson. This instrument may be used for the removal of foreign bodies in the stomach. I have been informed that Jackson is successful in over 90 per cent of the cases of foreign body in the stomach. Because of the relatively small area of gastric mucosa visualized, this scope is only of limited aid in the diagnosis of gastric lesions. It is the only gastroscope through which biopsies may be made, but again its field is limited because of its small field of vision.

Another method of gastroscopic examination is that of multiple gastroscopic photographs. In this, several small photographs of the gastric mucosa are made in various positions through a scope which does not permit a view of the gastric mucosa with the naked eye. This method is woefully inadequate in that only a small portion of the gastric mucosa is visualized and the photographs obtained are not particularly clear.

There are two other instruments, both of which are in use today and both of which give very clear and fairly complete views of the gas-

tric mucosa. The first and oldest of these is the rigid gastroscope. This instrument consists of a long metal tube with a light at the distal end above which is a prism through which the image is obtained. This image is then transmitted through a series of lenses up the tube to the proximal end. A soft rubber tip is placed at the distal end to guard against injuring the tissues. Both this and the flexible scope are equipped with facilities for inflating the stomach with air. The flexible scope is so made that the lower three-fifths of the scope is flexible with many lenses along the tube so that it may be bent through a considerable angle. There is no doubt but that the flexible scope has a slight advantage in that it is more easily passed and safer in the hands of the unskilled. It has, however, the disadvantage that the flexible tube very easily loses its flexibility and after about forty to fifty examinations it is necessary to send the instrument back to the manufacturer for repairs. These repairs are not only costly but also necessitate much loss of time.

The first question which naturally comes to mind concerns the inconvenience to the patient. Gastroscopy is not a distressing examination for the patient. Both the rigid and flexible scope are passed very easily, in fact much more easily than the ordinary stomach tube. Many of my patients have said that they do not mind the gastroscope (rigid type) but that they don't like the old fashioned stomach tube. There is very little inconvenience to the patient after the scope has been passed. Although some patients, especially those with hypertrophic gastritis, complain of pain when the stomach is distended with air, this sensation disappears as soon as the scope is removed and the patient belches up the air. A few patients will complain of some soreness in the throat the day following examination but this disappears in a day or so. Many of my patients have requested a second and third gastroscopy and very few if any patients refuse a second gastroscopy when permission for such an examination is requested.

As far as the gastroscopist is concerned, the procedure is not difficult. I would much rather pass a gastroscope than a stomach tube. It does not require much training to enable the novice to pass the scope although the interpretation of the appearance of the gastric mucosa requires a

very considerable experience. The differentiation of ulcer or carcinoma as well as the appearance of the various types of gastritis cannot be learned in a short period of time. It requires careful studies of lesions not only with the gastroscope but also with the x-ray and wherever possible by biopsy control. It is only after an extensive experience of this kind that the gastroscopist becomes expert in the differential diagnosis of gastric lesions.

Before any method can be of any great value diagnostically, it must be proven to be without any great element of danger. I believe that today we can truthfully say that gastroscopy is for all practical purposes without danger. Schindler⁴ with his flexible scope has done some 3,000 gastroscopies without a fatality. It is true that last year while trying out a new type of tip for his instrument he perforated three stomachs but this accident has not occurred since nor did it occur before trying out the new tip. Other European gastroscopists report large series of cases without a fatality. The rigid instrument has a higher mortality than the flexible instrument but even with this instrument the mortality is very low. Becker¹ in Bonn reported a series of 600 cases in the 600th of which he perforated a gastric ulcer and the patient died. Henning² reports 1,200 gastroscopies with the rigid instrument without a fatality. He also reports a further series of 1,400 gastroscopies with the flexible scope without an accident. In some 300 gastroscopies I had the misfortune to cause a necrosis in the throat of an old gentleman which lesion resulted in a mediastinitis and death. Having done all three procedures, I feel that gastroscopy carries a lower mortality than esophagoscopy or bronchoscopy.

There are a few absolute contraindications to gastroscopy. One of these is an aneurysm of the aorta. Another is diverticulum or stricture of the esophagus. Carcinoma of the cardia is also a contraindication. Acute inflammation of the esophagus or stomach are also listed as contraindications by most gastroscopists. The indications for gastroscopy are varied according to various authors. Schindler,⁵ the peer of all American gastroscopists, believes that all patients with gastric complaints, and especially those with negative x-ray findings, should be gastroscopied. Using these indications he finds

that 50 per cent of his patients show gastritis in some form, 20 per cent show ulcers, 20 per cent are normal, 7 per cent have carcinomas and 2 per cent benign tumors. Our experience has been quite different from this in that up to now we have concentrated our attention largely on those patients with gastric pathology as demonstrated by x-ray. In this way our statistics show a preponderance of carcinoma and ulcer although some goodly amount of gastritis has passed through our hands. Of late we have turned our attention to those cases with negative x-ray findings and have been able to make some interesting diagnoses that were not possible by x-ray. Personally I am now convinced that Schindler is right in saying that gastroscopy is most useful in those cases with gastric complaints in whom no positive findings are obtained by x-ray or in whom x-ray is not certain as to the nature of a discovered lesion.

Normal Appearance of Stomach

In the normal stomach a fairly complete view of the gastric mucosa can usually be obtained. There are a few small areas, however, that are very difficult to bring into view and very often these areas are not visualized at all. One of these is the small portion of the lesser curvature below the angle, in other words that part of the lesser curvature in the antral canal. Since the gastroscope lies in close proximity to the posterior wall, it is difficult to bring the small part of this wall just next to the gastroscope into view as the lens becomes smeared with secretion when it touches the wall. The cardia is difficult to examine but with perseverance it can be brought into view. The greatest difficulties are the absolute orientation and the interpretation of what is seen.

Normally the gastric mucosa has a pinkish-orange shiny appearance with the rugæ appearing as elevated ridges. Those portions of the mucosa close to the scope appear brighter and more orange, while those farther from the scope appear dusky. The mucosa close to the scope is magnified, while objects further from the prism appear smaller. The stomach wall may be pulsating with the aorta and other large vessels. The stomach moves with respiration so that the gastric mucosa moves back and forth across the field of vision. There is very little peristalsis in the stomach as viewed through the gastroscope.

The reason for this is not clear although some of the explanation may lie in the fact that all patients are given fairly large doses of morphine or codeine and atropine before the examination.

The most common abnormal finding in the stomach is gastritis in one of its various forms. Acute forms of gastritis such as follow the ingestion of chemicals (alcohol, lye, etc.) or which occur either of themselves or in the course of other infectious diseases are not as a rule indications for gastroscopy. Usually the mucosa has a markedly reddened appearance with much mucus and necrotic material covering the mucosa.

"Chronic mucosal catarrh" is the type of gastritis found in conditions of stasis. In other words, it occurs frequently in heart failure, portal obstruction, carcinoma with lymphatic blockage, and, above all, in cases of gastroenterostomy. It is a very common finding in the gastroenterostomized stomach and probably explains some of the unpleasant gastric symptoms which frequently follow this operation. We have had several examples of this in our series and find that a goodly percentage of the post-gastroenterostomy patients with gastric symptoms have this form of gastritis. Once having seen the angry appearance of the mucosa in these cases, one becomes very skeptical of the value of this operation. The mucosa in these cases presents a cyanotic appearance with much necrotic material over its surface. Biopsy of such a lesion occurring in a case of carcinoma of the stomach shows an infiltration into the mucosa of eosinophiles, polymorphonuclears, plasm cells and lymphocytes. These patients have as their main complaint the occurrence of pain coming on usually one to two hours after meals and have frequently been erroneously diagnosed gastro-jejunal ulcer.

Probably the most common form of gastritis is hypertrophic gastritis. This is found in a great many patients with pain, belching and general feeling of discomfort in the epigastric region following meals. It appears that many of the cases usually diagnosed as bowel dysfunction also show this condition of the mucous membrane. For this reason one must be careful in interpreting the symptoms attributed to this lesion. The lesion has, however, one fairly constant symptom. These patients usually complain of pain when the stomach is distended with air. This lesion is easily recognizable. The rugæ are usually more

prominent and are difficult to wipe out with air pressure. The mucosa itself seems to be rough, loses its shiny appearance and is made up of small hillocks with small valleys between them. The mucosa often has a velvety appearance when viewed in profile in contradistinction to the normal smooth, shiny appearance. The pathology consists of an increase of connective tissue so that mucosa and submucosa becomes securely bound together and resulting contraction causes puckering of the surface. There is usually an increase of round cells in the mucosa. The treatment of this form of gastritis is unsatisfactory. Despite vigorous medical treatment and apparent improvement this lesion is prone to recur with the slightest dietary indiscretion. We have seen several interesting examples of this form of gastritis. One of these patients was diagnosed as an extensive carcinoma of the stomach by the roentgenologist because of the marked irregularity and apparent rigidity of the stomach wall. Gastroscopy, however, showed this lesion to be a hypertrophic gastritis with exceptionally large rugæ. On medical treatment the lesion improved markedly so that the x-ray examination revealed an essentially normal stomach although the hypertrophic gastritis could still be seen gastroscopically.

Gastric erosions are not uncommon. They appear as small reddish defects in the gastric mucosa and are usually found on the rugæ. They may be single or multiple and may occur in acute or hypertrophic gastritis. They assume considerable importance in gastric hemorrhage, for after ulcer and carcinoma are excluded, they are a fairly frequent source of bleeding. In several patients with gastric hemorrhage we have been able to demonstrate erosions on gastroscopy and have been able to determine that the blood in the stools disappears when the erosions are healed. Just recently another cause of gastric hemorrhage has come to our attention. Following a hemorrhage for which x-ray could find no cause, the patient was gastroscopied and was found to have varicosities high on the lesser curvature. Esophagoscopy revealed no varices in the esophagus and therefore the varices in the stomach were not merely prolongations of esophageal varices. This lesion is apparently not an uncommon one as we have seen two such cases in our short series.

Chronic atrophic gastritis is seen in such diseases as pernicious anemia and leukemia. In these it is primary in origin but there is an opinion that it may also occur as the end result of a hypertrophic gastritis. Pathologically these cases show atrophy of the glands and thinning of the mucosa which becomes fibrous in nature although the mucosal surface is not broken. Gastroscoically these cases present a smoothed-out appearance and instead of the normal pinkish to orange color, the mucosa takes on a gray green color. The blood vessels are often clearly seen through this thin mucosa.

Specific infections of the stomach are rare and for that reason not much is known about their gastrosopic appearance. No case of active lues of the stomach has been reported in the literature. We have had the opportunity of viewing such a case. The patient, a white female sixty-nine years of age, diagnosed benign ulcer of the stomach by x-ray, was put on medical therapy but did not improve. She was admitted to the hospital and because of lack of both clinical and x-ray improvement, a diagnosis of probable malignancy was made. The patient had a 2+ Kahn reaction on two occasions.

The possibility of lues of the stomach was considered but because of the rarity of this condition, the idea was dismissed. She was gastroscopied and a large, ulcerated lesion with undermined ragged edges and a bleeding grayish base was seen. At the time I made this observation nothing was known about the appearance of lues of the stomach and I believed it was safest to consider the lesion as possibly malignant. To prepare her for operation, she was given potassium iodide followed by neosalvarsan. About two weeks after the institution of this treatment she was again gastroscopied in order that the staff might view a large ulcerating lesion. At this time I was rather perplexed because the lesion now had lost its undermined edges and was no longer bleeding. However, because the significance of this change was not realized, she was explored after another two weeks of antiluetic therapy. At operation the surgeon felt only a boggy indurated area in the stomach. An incision was made into the stomach and the stomach was viewed from the mucosal surface. The area under suspicion appeared thickened but showed no evidence of ulceration. A biopsy of this area

showed definite perivascular infiltration with lymphocytes and plasma cells deep in the submucosa. About one month following the operation the patient was again gastroscopied. At this time the lesion appeared as an indurated discolored area in the stomach wall. The line of incision into the stomach was seen as an elevated ridge. Several months later gastroscopy showed the area to consist of patches of white glistening scar tissue interspersed with pinkish areas. The line of incision into the stomach appeared as a white scar. The luetic area is still rigid and shows no movements such as characterize the normal stomach. Two years later after antiluetic treatment, this patient is free of gastric symptoms.

Benign ulcer of the stomach has a typical appearance. The usual appearance is much like that of the canker sore in the mouth. The margins are fiery red and the center consists of white necrotic material. The ulcer is usually round or oval with smooth edges. In the healing stage the convergence of the rugæ on this lesion can easily be seen. As the ulcer heals the necrotic center sloughs out and is replaced by granulation tissue. The mucosa grows in from the margin and gradually narrows the ulcer down until it disappears. For some time following the area has much more of a fiery red color than the surrounding mucosa. The most characteristic findings for a benign ulcer are therefore the fiery red color of the margins which are smooth and usually not elevated above the wall of the stomach. At times multiple small ulcers are seen in one area of the stomach, but here again each ulcer has the characteristic of a benign ulcer.

The early diagnosis of carcinoma of the stomach is one of the most important problems that confronts the gastroscopist. Any progress in the treatment of carcinoma surgically must depend on the earlier diagnosis of such lesions. There is probably no lesion that gives such a varied appearance gastroscoically. The lesions vary in color from pale white to gray, blue or purple. The lesions are usually very irregular in outline although small lesions may be smooth. The edges are usually raised above the level of the stomach wall. The ulcerations when present are usually irregular and present a dirty, necrotic center. The rugæ usually run up to the beginning of the margins which then raise above the general level

of the stomach. The differential diagnosis between ulcer and carcinoma is as a rule not difficult. Once having acquired enough experience, we have been very successful in diagnosing the nature of these lesions. It is difficult to explain exactly how the differential diagnosis is sometimes made but the operator makes his decision largely on the general appearance much as the dermatologist diagnoses lesions by their general appearance and often cannot give the exact line of reasoning used in arriving at the diagnosis. We have been fortunate enough to have made a diagnosis of carcinoma on a lesion which the pathologist insisted must be benign on gross appearance but microscopic section of which showed carcinoma.

The question naturally arises as to whether the gastroscopist can diagnose carcinoma of the stomach before the x-ray can make such a diagnosis. We have been fortunate to have seen such a case. The patient came to the hospital following a gastric hemorrhage. She had had a previous hemorrhage three months previously. X-ray showed no evidence of any gastric lesion. She was gastroscopied and a lesion was seen on the posterior wall near the greater curvature about one-third the way from the cardia to the pylorus. A complete view of the lesion was not obtained but a diagnosis of a malignancy, possibly a broad

base polyp or possibly the edge of a malignant ulcer was made. This case was again x-rayed and no lesion could be found. At operation an indurated thickened area was felt in this area of the stomach and the stomach was resected to within 5 cm. of the cardia. On opening the resected stomach a lesion approximately 4 cm. in diameter with a small ulcerated area in its center was seen. Grossly the lesion appeared benign to the pathologist but microscopic examination proved the lesion to be malignant. Lesions near the cardia are notoriously difficult to find by the x-ray method. It is here that the gastroscope has its greatest possibilities. Although the region is also difficult to view gastroscopically, perseverance and experience will usually enable the operator to obtain a fairly complete view. On two occasions we have been able to make a diagnosis of probable malignancy at the cardia because the gastroscope met up against a stony hard resistance. In both these cases it was impossible to get the gastroscope into the stomach so that the lesions could not be seen, but both proved to be malignant at autopsy.

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THE USE OF THE FLEXIBLE GASTROSCOPE*

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THE gastroscope is not a new instrument. Visualization of the interior of the stomach has been attempted in various ways, more or less crude, since the first reports of Kussmaul, in 1869, and Mikulicz, in 1879. Because of the extreme danger of the early clumsy tubes and the poor results, nothing much ever came of the method until the second decade of this century. During the '20's many men, mostly in Germany, worked with various types of rigid and semi-

rigid 'scopes. Much important information about the stomach was acquired by Gutzeit, Elsner, Korbach, Henning, Schindler and others. Anyone working with these 'scopes, or interested in the subject, realized the limitations, disadvantages and even dangers of the rigid types. With the collaboration and technical advice of Wolf of Berlin, Schindler of Munich, finally, in 1932, developed a practical flexible gastroscope. This instrument is simple to introduce, without danger in properly selected cases, and gives excellent sight of practically the entire lumen of the stomach. Furthermore the Wolf-Schindler flexible

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gastroscope, although still manufactured in Germany, is now distributed by a New York instrument and optical concern which is also equipped to make necessary repairs. Thus this safe and practical endoscope now fulfills the diagnostic requirements for the study of gastric disorders long felt by gastroenterologists and internists.

It is my purpose now to outline briefly the functions of the gastroscope in the diagnosis, both direct and differential, of stomach diseases. Let me say, at the outset, that this endoscopic method of investigating the lumen of the stomach has not, nor will it, supplant any other of the various methods now acceptable and used in gastric examination. The direct visualization of the gastric mucosa by the gastroscope is in some cases supplementary and in others complementary to history, physical examination, analysis of gastric secretion, fluoroscopic and radioscopic picturization, or other more indirect methods. In some conditions, as will be noted later, it gives information which can be obtained in no other way; in other instances, it may be confirmatory; in still other cases it may be contradictory. But in any event, like other methods of examining human material, it should find its proper place in the general scheme of a diagnostic program, and the findings revealed thereby be evaluated in the light of all the other data.

Practically any patient in whom the ordinary Ewald tube can be passed, may be gastroscopied. The contraindications are simple, namely, any obstruction, external or internal, of the esophageal lumen from the pharynx to the cardiac orifice, including of course mediastinal tumors, aneurysms, diverticulæ and the like. In some cases of rather extreme, stiff kyphosis, although the scope may be passed into the stomach, angulation is so extreme that a clear vision is impossible. Certain other obvious contraindications such as esophageal varices, angina pectoris, extreme hypertension, exist; and from the standpoint of comfort of the patient, safety of the tube and ease of visualization, a patient with intractable cough from bronchitis or acute upper respiratory infection, or with difficulty in breathing for any reason is an unsatisfactory subject.

The direct indications are, broadly, any case in which it is desirable to get accurate information about the state or condition of the mucosa of the stomach. This includes circulatory changes, inflammatory conditions, ulceration,

hemorrhage, new growths, etc. In some instances as will be seen later, this information can not be obtained precisely in any other way.

The gastroscope often clears up a questionable diagnosis, obscure from history and physical examination or with negative results from chemical and roentgen examination. In some cases the scope, too, reveals a perfectly normal mucosa, turning attention to the necessity of investigating the patient as a functional or psychoneurotic problem. As a matter of fact, these cases are among the most satisfactory; the patient seems to be more convinced by a report based upon direct examination, than by an opinion derived from indirect observation.

Very numerous are the cases with questionable or negative roentgen findings in whom the gastroscope reveals various forms of gastritis. It is not my intention at this time to go into a discussion of gastritis, except to point out that, as revealed by the gastroscope, there *are* changes in the mucosa and probably the submucosa of the stomach which must be called gastritis. The exact classification of the various forms, the correlation of the objective endoscopic findings with clinical, histological and roentgen evidences has still to be done. But for the present it must be accepted that inflammation, both acute and chronic, does occur in the stomach; that it may or may not, depending upon its character, give rise to symptoms; and that such changes can be accurately shown only by the gastroscope.

The most important differentiation is between simple, peptic, Cruveilhier type of ulcer of the stomach and ulcerative gastritis. These are two distinct entities, which may have quite similar, even identical, clinical history and findings, and in which roentgen examination may be negative or equivocal. The gastroscope has been the means of clearing up the question of whether gastritis is present as a cause or accompaniment of ulcer. Most gastroscopists (Konjetzny and Korbsch still dissenting) believe, and have stated, that ulcerative gastritis and so-called peptic ulcer are two different, unrelated conditions.

In peptic ulcer, particularly in the more chronic forms with retention, there may often be secondary gastritis; peptic ulcers may also be multiple; and in duodenal ulcer the stomach often shows gastric changes. But true ulcerative gastritis is a different condition, at least gastroscopically, and, conversely, the type of gastritis

occasionally seen with peptic ulcer is not the type seen in ulcerative gastritis.

Other forms of hypertrophic gastritis, hemorrhagic, erosive, aphthous and the more superficial catarrhal forms, often can not be distinguished clinically and even roentgenologically from ulcer. We have examined cases in which, with a history of gastric upsets, the x-ray report has been ulcer or suspected ulcer and some one of these many forms of gastritis has been found to be the true diagnosis. In many other cases, again with a dyspeptic history, in which the roentgen report has been negative, some form of gastritis has offered a positive diagnosis and explanation of the symptoms. The finding of gastritis instead of ulcer not only gives a guide to medical treatment, but certainly obviates the necessity of considering surgical proceedings at all.

Atrophic gastritis is less likely to produce symptoms, but several interesting cases of such have been seen, in which an acute exudative gastritis was superimposed on an atrophic mucosa.

The diagnosis of early malignancy, or the distinguishing of malignant changes occurring in ulcerative tumors, is, in most cases, accurately made by the gastroscope. It is quite difficult to explain to one who has not looked through a gastroscope just what color changes and differences in texture and depth of mucosa are seen by the gastroscopists. But after repeated observation such differences are easily noted, and the more experienced gastroscopists seldom mistake malignancy. Again the scope may often be used to determine operability. The exact extent of a malignant lesion is often indeterminant by roentgen examination, but the gastroscope allows one to determine, with a high degree of certainty, normal from abnormal stomach wall.

Perhaps the most interesting study in gastroscopy is that made of stomachs which have been operated upon for various reasons. The location, patency and general condition of a gastro-enterostomy is usually easily determined. It is always important to know whether there is a stoma ulcer, a jejunal ulcer, and the exact condition of the mucosa of the stomach. In a general way it may be said that if a gastro-enterostomy is not well placed or is too large or too small, or if it does not contract but remains fixed and open, the stoma itself often and the stomach almost invariably are affected. Gastritis in resected stomachs is not as common, probably because the

type of operation usually done when a lesion must be resected gives more adequate drainage than the usual gastro-enterostomy. The question of recurrence of original malignancy is often difficult to determine in a resected, distorted stomach by x-ray, but is easily answered by the gastroscope.

The progress of the healing of ulcer, or gastritis or the atrophic membrane of pernicious anemia under treatment is beautifully shown by the endoscope. Conversely, the reason that an ulcer does not heal is often found by the scope; such a case is very likely to be one of ulcerative gastritis in the first place and not simple peptic ulcer at all.

The scope may safely be used to localize active and persistent bleeding. Whereas there is some danger attendant upon introducing the gastroscope with its necessary air pressure into a stomach, the site of recent or imminent perforation, there is nothing to fear from such a procedure in the presence of hemorrhage. There is nothing about the examination which would produce serious bleeding nor even aggravate hemorrhage already present; and the advantage in locating an open vessel is obvious.

A few typical instances of the value of gastroscopy may be briefly cited.

Mr. M. feared cancer because of his family history; and, inasmuch as he had lately suffered some epigastric distress, wished examination. Gastroscopy showed no cancer but an atrophic mucosa, facts immediately reassuring to the patient but possibly carrying prognostic implications to the clinician. Several cases of duodenal ulcer showed, according to the roentgenologist, defects suspicious or suggestive of gastric ulcer also. In some of the cases, no lesion at all was found in the stomach; in others, a gastritis not uncommonly accompanying duodenal ulcer.

Mrs. C., a highly neurotic woman with a history of vomiting, repeatedly, had gastric retention of high grade; on at least two occasions there were noted questionable defects at the pylorus on films. Gastroscopy revealed no lesion, but a markedly spastic pylorus and hypertonic antrum region. Other similar cases have been seen in which the distinction between spasm, malignancy and benign hypertrophic pyloric stenosis could not have been made roentgenologically or clinically. In each instance so far examined, the correct diagnosis has been by the gastroscope.

Mr. B. showed by x-ray a large crater on the posterior wall with a wide areola surrounding it, obviously indurated gastric mucosa, and the question of malignancy was properly raised. By the gastroscope a benign ulcer was seen on the anterior wall, the surrounding raised edge being only edema. The entire stomach also was involved in an extreme hypertrophic gastritis with

numerous other ulcers, erosions and hemorrhagic areas.

Mr. T. had been examined on numerous occasions, being given both positive and negative opinions as to presence of gastric ulcer. Gastroscoically he was seen to have extensive erosive gastritis.

Mr. D.'s stomach on x-ray was seen to be pushed to the left, obviously by an enlarged liver; whether it was the site of a primary carcinoma could not be determined. By gastroscope a scirrhous carcinoma involving the distal half of the stomach was seen.

Another man, because of the extremely irritable and hyperactive behavior of his stomach on fluoroscopic examination, was thought to have some lesion; but films failed to reveal any defects. Gastroscoopy showed an active hemorrhagic ulcer, high up just below the esophageal orifice on the anterior wall, a region very difficult to examine by x-ray.

Mr. H. was thought to have multiple tiny ulcers of the posterior wall when examined roentgenologically by relief technic, but gastroscoically a perfectly normal stomach was seen. The explanation of the defects was not apparent except that they may have been caused by very fine rugation which air pressure during endoscopic examination ironed out.

Mr. O. was diagnosed as having duodenal ulcer because of the quite characteristically defective bulb, as seen radioscopically. He had, however no free HCl acid after histamine, and blood smears showed a macrocytic anemia of moderate degree. He was a young man and the diagnosis had to be cleared up. The gastroscope revealed an atrophic gastritis compatible with pernicious anemia. If he had a duodenal ulcer too, it would certainly be a very rare and curious coincidence.

Many other identical or similar instances might be given. The intention is not to discredit other methods of examination for, as a matter of fact, many of the above roentgen diagnoses were made by myself. None of them cited above were roentgen errors or mistakes. All were common appearances which have given rise to question and doubt time and time again. Previously the diagnosis has had to be cleared up or corrected by repetition, exploratory laparotomy, watchful waiting or left honestly doubtful. Now with the gastroscope it may be possible in a good many instances to more quickly and efficiently arrive at a correct diagnosis. On the other hand there are many things shown by the x-ray which can not possibly be seen, or, if seen, not properly evaluated by the gastroscope. In certain patients there are, because of the form and position of the stomach, regions that it is not possible to bring into the gastroscopic field.

There are many patients, for reasons already listed, who should not be gastroscopied. There are others who, for various reasons, cannot be

gastroscopied. Roentgen methods and the gastroscope are not in opposition; it is not a question of the one or the other, but of collaboration. A knowledge of fluoroscopic and roentgen appearances is almost essential to gastroscopic interpretation, and the wider use of gastroscopy should aid an open minded roentgenologist in interpreting many of the pictures he sees.

The difference, as seen by the gastroscope, in the anatomy of the various regions of the stomach, is striking. Just what these differences mean physiologically has not been precisely worked out, but that there must be some functional distinction to correlate with the apparent morphological and anatomical difference is inescapable. The antrum, the pylorus, the body of the stomach and the cardia are quite definitely differentiated. This difference not only helps in orientation at the time of examination, but must have implications of physiological import.

From the foregoing remarks it is evident that gastroscopy should be employed by one sufficiently trained in gastroenterology to be capable of interpreting the pictures observed. It is not simply another endoscopic procedure. The technic of introduction of the scope may be very easily mastered. The interpretation of what is seen is possible only to one who has been sufficiently interested in gastric work to have acquired basic knowledge of normal and abnormal conditions. The instrument is of no use in the recovery of foreign bodies, even if it were important to extract such from the stomach. As yet there is no facility for obtaining biopsies if that will ever be feasible. But for the study of morphological changes in gastric mucosa, the gastroscope is the only instrument as yet devised which gives a true picture of the living stomach in health and disease. As an adjunctive diagnostic method it merits use by internists, surgeons and gastroenterologists interested in making more accurate studies of gastric pathology.

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VARIOUS DRUGS USED TO SUPPLEMENT THE BARBITURATES IN THE PRODUCTION OF OBSTETRIC ANALGESIA AND AMNESIA*

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IT IS a little over a decade ago since the barbiturates first came into use for relieving the pain of labor. Great hopes were raised that a simple and ideal analgesic and amnesic agent had been discovered. It was hoped that the barbituric acid derivatives would prove advantageous substitutes for the hazardous combination of morphine and scopolamine used in "twilight sleep"; for the confusing combinations of ether and quinine in oil given rectally followed by morphine and magnesium sulphate given hypodermically as employed in the Gwathmey technic; for the tedious and costly administration of nitrous oxide inhalations given intermittently over long periods. Advocates of intravenous, intramuscular, rectal and oral administration of barbiturates successively held forth their claims. It soon became apparent, however, that such disadvantages as undue restlessness of parturient patients, uncertainty of results as far as amnesia was concerned and the fairly frequent occurrence of apnea in babies at birth made it desirable to search for other drugs to supplement the barbiturates in their desirable effects and, if possible, to modify or counteract them in their undesirable effects. This search has met with but limited success and is still going on. It is my purpose to consider briefly some of the advantages and disadvantages of the supplementary drugs now most commonly being used.

Before doing so it is necessary to note the recent trends as to the preferred kinds of the barbiturates themselves, the modes of administration, the time of administration and their dosages. Pentobarbital sodium and sodium amylal are the barbiturates most used and most favored. Theoretically, the former acts more quickly than the latter. Practically, sodium amylal given in twice the dosage is just as rapid in its effect. Either of them when given orally or rectally acts fully in twenty to thirty minutes. Pentobarbital sodium is thought to be destroyed more rapidly in the body. This is a debatable

advantage during labor when a prolonged effect usually is desired but it is advantageous on the completion of labor when rapid return to consciousness simplifies nursing care. I have been unable to note any appreciable difference in the duration of action of the two drugs. Most patients under the influence of either of them become conscious and cooperative in four or five hours after the last dose of the drug and before that time a certain number of them are restless and irresponsible. Some of them may even get out of bed if not watched. All of them are safer when side-boards are used on their beds and when alert nursing service is available.

Oral and rectal administration are the most frequent routes, the former for initial administration, the latter for subsequent administration when the effect of the drug is wearing off but when the swallowing reflex is still disturbed so that dangerous aspiration of the drug might result from giving it by mouth. Intravenous administration, while it gives quick relief to the suffering patient, presents certain dangers characteristic of the rapid introduction of a potent drug into the circulation and its routine use practically has been discontinued.

It is being recognized that early administration is advantageous if maximum relief from pain is to be obtained and if restlessness is to be avoided. While many users of barbiturates have advocated withholding medication until the presenting part is deeply engaged and there is 3 or 4 cm. dilatation of the cervix, it is becoming evident that medication should be started as soon as labor is definitely established. Establishment of labor probably should be defined as regular, palpable contractions occurring every five minutes or less and lasting forty-five to sixty seconds. Rosenfield⁸ does not believe that it is necessary to wait for definite engagement or demonstrable dilatation. It has been argued that too early administration of the drug may stop labor. The barbiturates occasionally produce a short lull in labor but rarely, if ever, stop uterine contractions. On the contrary, they fre-

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quently hasten the course of labor because they relieve nervous muscular tension and probably relax the cervix. Randall has urged that the analgesic effect of the drug be kept a little bit ahead of the patient's requirements, thus reducing the incidence and degree of restlessness.

Dosages are higher than formerly, particularly initial dosages. It has been noted that large initial doses are less apt to produce excitement and that they give quicker relief from pain. For pentobarbital sodium, the initial dosage ranges from 4.5 to 7.5 grs. For sodium amytal, twice this dosage, namely 9 to 15 grs. is required to produce the same effect. When the larger initial dosage is contemplated, it may be advantageous to divide it into two portions, preferably 4.5 and 3 grs. of pentobarbital sodium or 9 and 6 grs. of sodium amytal. Administration of the first portion will be followed in fifteen to twenty minutes by the second portion. In this way, individual sensitivity of patients to the drugs may be noted and sometimes the amount of the second portion will be reduced or it even may be omitted. Subsequent dosages are from one-third to one-half of the original amounts and are given usually at three or four hour intervals, although they may be given at intervals as short as one and one-half hours or as long as six hours. Variation in sensitivity to the drug is common and the time of repeating the medication must be judged by the reaction of the individual patient. Total dosages of pentobarbital sodium range from 6 to 12 grs. although 22.5 grs. have been given over a period of thirty-seven and one-half hours by Galloway⁴ without evident ill effects. Total dosages of sodium amytal up to 24 grs. are not unusual or seemingly injurious.

The most frequently used supplementary drug is scopolamine. It is usually given in the form of hyoscine hydrobromide in doses of 1/200 to 1/100 of a grain. The most frequently used dose is 1/150 of a grain. It is given hypodermically with the initial dose of the barbiturate and sometimes is repeated once in the same or a smaller dose. The chief objection to this combination of drugs is the restlessness produced which various reports show to range from 17 to 50 per cent. The wide variation of reported restlessness is somewhat difficult to explain. It may be dependent upon different standards of judging restlessness, but it is more probable that the

higher percentages occur in those series in which smaller doses of the barbiturates are used and when administration of the drug is postponed to the latter part of the first stage. Whatever the explanation, it does indicate that scopolamine does not add to the analgesic effect of the barbiturates, for restlessness, since it usually occurs only during contractions, is an indication of poor analgesia. It necessitates constant nursing care but does not indicate failure of pain relief for over 90 per cent of patients have little or no memory of their labors. While the use of scopolamine with the barbiturates does not prolong labor, neither does it decrease the use of outlet forceps which is frequently resorted to because of the lack of voluntary muscular assistance during the perineal stage of labor. Nor does it reduce the number of apneic babies noted when the barbiturates are used alone. Delay in initial respirations and sluggishness of new-born babies are unavoidably associated with barbiturate medication during labor because the concentration of the drug in the baby's blood is probably the same as in the mother's. Dille⁵ has shown experimentally that the placenta presents no barrier to the passage of barbiturates into the embryo. Fetal apnea, however, does not increase fetal morbidity and mortality and it usually responds to mild stimulation. Carbon dioxide and oxygen inhalations to the mother before the cord is clamped and to the baby afterwards are particularly valuable. Clearing the baby's throat of mucus with a soft rubber suction bulb and rubbing the back are usually sufficient in the 30 to 40 per cent of babies who do not breathe and cry promptly. Injection of one-half a c.c. of metrazol or coramine into the buttocks or occasionally into the umbilical vein may be indicated when apnea is more marked. Tubbing is rarely necessary. The main rôle of scopolamine as a supplement to the barbiturates is the same as it was with morphine in "twilight sleep," namely to insure amnesia. It is still the "drug of forgetfulness."

Morphine sulphate in doses of $\frac{1}{8}$ to $\frac{1}{6}$ grain has been used with the barbiturate-scopolamine combination to control restlessness. Dilaudid in doses of 1/32 grain has been used in the same way.¹⁰ Opium derivatives have also been used alone to supplement the barbiturates. They were, in fact, the first drugs considered as supple-

mentary medication. Daichman and Shir² have proven the analgesic effectiveness of morphine by obtaining over 97 per cent of quiet patients when $\frac{1}{6}$ grain of morphine was given with 9 grains of sodium amytal as compared to only 67 per cent of quiet patients in a previous series in which sodium amytal was used alone. Only half of their patients, however, had good or fair amnesia. Twenty-two per cent of the babies were apneic and almost 9 per cent more were asphyxiated. More coöperation from a quiet patient seems to be the main advantage of routine morphine-barbiturate medication. This desirable effect is probably offset by the loss of dependable amnesia and the hazard of asphyxiated babies. The use of morphine in labor has decreased markedly since the introduction of the barbiturates. Many obstetricians now believe that its greatest usefulness lies in its effectiveness when given in full doses to give needed rest during prolonged first stages of labor.

Paraldehyde given rectally in oil is the most recent drug used supplementary to the barbiturates. Rosenfield and Davidoff⁷ reported remarkable success with its use in 1932. Ninety-five per cent of their patients had complete amnesia; only 7 per cent showed marked restlessness and only 11 per cent of the babies were apneic. Colvin and Bartholomew¹ modified their technic somewhat but confirmed their results, even advising the use of the method in home deliveries. Irving and his co-workers,⁵ for some reason or other, were unable to duplicate their results, their series of cases showing only 64 per cent amnesia, while 24 per cent of their patients were restless enough to require restraint and 47 per cent of the babies were apneic. Paraldehyde is usually given after full doses of one of the barbiturates. Initial doses range from 6 to 8 drams and are mixed with equal or larger amounts of olive oil. Subsequent administration may be unnecessary if additional barbiturates are given or may, failing to get relief from barbiturates, be repeated in one-third to one-half of the initial doses as early as three hours later. Rapid rectal injection through a 100 c.c. barrel and plunger syringe connected to a rectal tube inserted six to eight inches in the rectum and this procedure followed by pressure over the anus for ten to thirty minutes are important details of administration preventing expulsion of the mixture.

While the method is less simple than the barbiturate-scopolamine technic, it promises the advantages of increased quietness of mothers and decreased apnea of babies. The importance of repeating the medication as soon as indicated, if one would avoid increased restlessness and diminished amnesia, should be stressed. Total dosages range from 6 to 13 grains of pentobarbital sodium and from 6 to 12 drams of paraldehyde.

Rectal ether in oil in doses of 2 to 4 ounces has been used to supplement barbiturates to a limited extent and with somewhat discouraging results. Various reports note increased asphyxia of babies,⁸ decreased amnesia⁵ and delayed labor.⁹ This combination results in only 5 per cent of restlessness,⁵ however, and it may be that its future usefulness will lie in controlling the marked restlessness too frequently incident to barbiturate-scopolamine medication.

In conclusion, the combination of scopolamine with pentobarbital sodium or sodium amytal offers the fewest disadvantages and presents the least complicated technic. It requires constant nursing care before and for several hours after delivery and seemingly is adaptable only to hospital use.

The supplementing of barbiturates with paraldehyde, while presenting a more complicated technic, should prove valuable in producing obstetric analgesia and amnesia when quietness and coöperation of the patient is important and therefore prove particularly adaptable to home obstetrics.

Morphine has a limited value in augmenting the effect of the barbiturates and should be used judiciously. Rectal ether in oil is valuable for relieving extreme restlessness.

Ideal routine methods of producing obstetric analgesia and amnesia can be approached but probably never achieved. There will always be individual variations of patients, attendants and conditions to which various drugs and technics must be adapted.

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HEART DISEASE IN CHILDREN—SHAPIRO

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DIAGNOSTIC PROBLEMS IN HEART DISEASE IN CHILDREN AND YOUNG ADULTS*

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NO FIELD of medicine has shown more progress in recent years than that of cardiology. Precise pathological diagnoses can now be made in the living patient even to the point of determining which branch of the coronary artery is involved in a thrombotic process. This advance has been possible through a better understanding of the pathology of heart disease, by long continued follow-up studies, and also by the use of instruments of precision, such as the electrocardiogram and x-ray. This increased efficiency in cardiac diagnoses will, of course, eventually lead to more effective therapy. For the present, however, it can be said that this marked progress has also made all of us heart conscious. The medical profession as well as the public are repeatedly informed that heart disease is now the leading cause of death. Hardly a day passes without a notice in our newspapers that some individual died of a heart attack. A man may die from any other cause but mention is rarely made of it, but if he dies of a heart condition it is sure to be noted. All such publicity leads to apprehension. Every time a prominent person is said to have died of a heart attack, there is an increase in cardiac neurotics to examine. This sort of information also has its effect on children and young adults. Because of this over-emphasis of heart disease, it is most important that our diagnoses be correct lest by our errors we help to produce chronic invalids. There are many functional conditions of the heart which can and should be differentiated from organic heart disease.

During an experience of fourteen years at the Lymanhurst Heart Clinic, a relatively large number of patients have been examined who were found to have no organic heart disease. Some of them had been kept in bed from weeks to months; some were taking digitalis; others were restricted in their activities and had been excluded from gymnasium on the written excuse of their physicians, stating that they had some cardiac disorder. Some were already cardiac neurotics. Such patients are most difficult to deal with and often become chronic invalids in spite of every assurance that their hearts are in fact normal. It is true that in some of these instances, no definite diagnosis of organic cardiac disease was ever made by the doctor in attendance, but mention of a murmur or an irregularity in the heart or a remark such as "a slight leakage which the patient will outgrow," was enough to cause the fear of heart disease.

It is with the hope that some facts of practical value gained from these years of experience may help in avoiding such errors in diagnosis that this report is given.

Since 1922, there have been examined at the Lymanhurst Heart Clinic, 887 patients who were found to have no organic disease of the heart. These patients are divided into four main groups: (1) no heart disease, 677 patients; (2) non-pathologic murmur, 241 patients; (3) extra-systolic arrhythmia, 27 patients; and (4) neuro-circulatory asthenia, 23 patients. Among the 677 patients who were classified as no heart disease, many had systolic murmurs over the pulmonic area, cardio-respiratory murmurs or roughening of the first sound at the apex. Others had marked sinus arrhythmia. In spite of the fact that

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some of these patients had previously been diagnosed as suffering from organic heart disease, our findings were so obviously within normal limits that we classified them as having normal hearts.

Non-Pathologic Murmurs

A study of the literature on the subject of the significance of the systolic murmur shows an interesting change of thought in the past century. One hundred years ago, every murmur heard over the heart was considered as evidence of serious heart disease. As more and more post-mortem examinations on patients with systolic murmurs revealed no cardiac pathology, investigators became skeptical of the importance of these murmurs. Mackenzie,⁵ in his well known long continued follow-up studies on private patients, was quite convinced that the systolic murmur was of no importance. He pointed out that he had followed patients as long as forty years with persistent systolic murmurs and at no time was there ever any evidence of cardiac disease. At the beginning of the World War, it was the consensus of the best opinion that the systolic murmur heard over the heart was of little importance and could be almost disregarded. However, in the last ten or fifteen years, a number of articles have appeared which would indicate that the systolic murmur is again coming into its own. It is pointed out now that a careful analysis of every systolic murmur must be made and that a good many of them will eventually be proven to be due to organic disease. Levine⁴ in a recent article has concluded that "systolic murmurs do occur but are not common in normal individuals." White⁷ divided the apical systolic murmur into slight, moderately loud, and very loud, and concluded that "the louder the murmur the greater is the possibility of organic heart disease and the worse the prognosis." Fineberg and Steuer⁸ recently reported a follow-up study on 100 children with what are termed "uncomplicated apical systolic murmurs" and concluded that 30 per cent of these patients eventually develop serious complications (mitral stenosis, aortic regurgitation, or both). However, a study of their facts indicates that their patients did not have what it is correct to designate as uncomplicated systolic murmurs, since a good many of them gave a definite history of rheumatic fever or chorea and a number already showed some cardiac enlargement by x-ray on the first examination. No

patient with a history of rheumatic fever or chorea can be designated as a patient with an uncomplicated systolic murmur. These patients should be classified as having potential heart disease and must be followed over a number of years before it can be definitely concluded that they have no organic heart disease. Siemsen⁶ in the consideration of non-organic auscultatory cardiac findings points out that it is necessary to consider other factors than the murmur itself in evaluating the importance of any systolic murmur.

Apparently Mackenzie tended to under-rate the importance of the systolic murmur. On the other hand, it is quite apparent that as a result of the more recent studies, the systolic murmur is again being stressed too greatly and is placed in a position far more important than it clinically deserves. As a result of these latest articles and also because of insurance statistics, some of the medical directors of life insurance companies have concluded that for practical purposes there is no such thing as a functional murmur; that all applicants with any kind of heart murmur should either be rated up or rejected. The fact that the insurance figures show a bad experience in regard to systolic murmurs would indicate that these applicants have not been examined carefully; that many of the so-called non-pathological murmurs were, in fact, murmurs of organic heart disease.

Of the 241 patients in our series diagnosed as having non-pathologic murmurs, 231 are included in this study. It should be noted that these patients had definite systolic murmurs and that all patients with merely pulmonic systolic or cardio-respiratory murmurs were not considered in this group but were placed in the group labeled as no heart disease. Of these patients, 120 were males; 111 females. One hundred and forty-nine, or 65 per cent, were examined once, while seventy-four, or 35 per cent, were followed over a varying number of years. Sixty-one patients were followed for less and thirteen for more than five years. One hundred eighty-three had x-ray examinations of the heart and forty-six were re-x-rayed on subsequent examinations. In twenty-five instances, electrocardiographic tracings were taken. The age range of these patients was from three to nineteen years.

Location of Murmur.—One hundred forty-nine of these systolic murmurs were heard at the apex; nineteen over the aortic area; seventy-three along the left border of the sternum; twenty-four patients had hemic murmurs, the so-called "venous hum." In all but six patients, the murmur accompanied but did not replace the first sound. In eighty-four it was noted that the murmur changed with the position of the patient. The x-ray examination of the heart in every instance was within normal limits and all follow up x-ray examinations showed no enlargement or change in contour of the heart. The electrocardiographic tracings were found within normal limits. The follow-up study on these patients shows that there was very little change in the original diagnosis. In three instances, the murmur disappeared entirely. In two cases, a diagnosis of mitral regurgitation was finally made and in one instance the so-called non-pathological murmur was found to be due to congenital heart disease. From a study of these facts, it can be stated that a diagnosis of a non-pathological murmur can be made with a good deal of assurance, and that such patients followed over a number of years will be found to develop no heart disease in spite of the fact that the murmur persists.

In differentiating between systolic murmurs of organic nature and those that are non-pathologic, the following facts should be taken into consideration: So-called functional murmurs may be heard at the apex, along the left border of the sternum or over the aortic area. They are usually short, not intense, and are well localized; they change in intensity with position of the patient, sometimes being louder in the upright position and in other instances are heard best in the prone position; they do not replace the first sound and are not heard through to the back. Functional murmurs are more common in patients with fast hearts. On the other hand, murmurs of organic nature are louder and longer; they often replace the first sound, are commonly well transmitted and are frequently heard at the angle of the scapula. There are, of course, exceptions to all these statements, and in a general way the nature and intensity of the murmur is of secondary importance. What is far more important in this differential diagnosis between the organic and non-organic murmur is the patient's

history and the size of the heart as found by x-ray examination. It is well known that 90 per cent of heart disease in young people is due to the rheumatic infection. In considering the patient with a systolic murmur, if, after a careful and understanding history, rheumatic infection can be ruled out and if the heart is found within normal limits as to size and contour, one is safe in concluding that the murmur is unimportant, and needs no treatment. On the other hand, if a history of rheumatic infection is obtained, the systolic murmur must be considered as a possible early sign of valvular disease and must be followed over a period of time before a definite conclusion can be reached. Further, if on x-ray examination the heart is found enlarged or changed in contour, the systolic murmur should be considered organic in nature. In passing, it may be stated that percussion is rapidly proving of decreasing value and that an accurate opinion as to the size and contour of the heart, especially in early heart disease, can be obtained only by roentgen examination. In my opinion, the x-ray is not used nearly enough in the study of heart conditions. The electrocardiogram has been of little assistance in differentiating between organic and functional heart disease in young people.

A good many children have been examined who were told that they had a heart murmur during an attack of some acute febrile disease. As is well known, murmurs heard during fever are due for the most part to the increased speed of the heart and commonly disappear when the temperature returns to normal. It is not safe to give an opinion on the heart while the patient has fever. It would be better not to mention the possibility of a heart condition until the child has fully recovered from the febrile disease and the heart studied more carefully under more normal conditions.

Non-pathologic murmurs need to be differentiated from congenital heart disease. Such differentiation is usually not difficult. The murmur of congenital heart disease is usually quite typical, it is harsh, prolonged, rasping in type, commonly occupies the entire heart cycle and is unusually well transmitted, often being heard throughout the chest, down both humeri and even on top of the head. The point of maximum intensity of the congenital murmur is usually

along the left border of the sternum or over the base of the heart but rarely over the apex. The murmur is often accompanied by a thrill. In those cases with the characteristic high-grade cyanosis and clubbing of the fingers the diagnosis is evident. However, it must be noted that the majority of patients with congenital heart disease who live beyond early childhood have neither cyanosis or clubbing of the fingers. X-ray examination often helps greatly, as the contour of the heart in congenital lesions may be quite characteristic and the six-foot film may be diagnostic in itself.

The Venous Hum

It was noted previously that in twenty-four of these patients, a hemic murmur was heard. This murmur, the so-called "venous hum," often leads to errors in diagnosis. It is heard in the vessels of the neck, in the supraclavicular space, most commonly the right, just above the clavicle. It runs through the entire heart cycle and varies greatly in intensity with position of the patient's head. When the vessels of the neck are put on stretch, the murmur is greatly intensified; when the stretch is released, the murmur may disappear entirely. It is usually heard best in the upright position and commonly disappears in the prone position. This murmur is often transmitted over the base of the heart and can be heard over the aortic area and not uncommonly is heard over the apex. If one bears this fact in mind and remembers to place the stethoscope in the supraclavicular space in listening to the heart, the origin of some of these functional systolic murmurs will be discovered. Movement of the patient's head will cause a change in intensity in these transmitted hemic murmurs heard over the aortic area or apex.

Extra-Systolic Arrhythmia

What has been said about the systolic murmur is also true in a general way of the extra-systole. Before the introduction of modern methods in cardiology, premature beats were considered as indicative of organic heart disease. Mostly as a result of Mackenzie's work, it soon became evident that the extra-systole could occur in otherwise normal hearts. Recently, however, the extra-systole has been carefully analyzed and it has been shown by a number of writers that this irregularity of the heart may or may not be due

to organic heart disease. Bass¹ has divided extra-systoles in children into: (1) emotional; (2) toxic, following acute infections which may or may not indicate early involvement of the heart; and (3) idiopathic, which may be permanent and do not necessarily mean heart disease. Boas and Levy² in a recent article discuss extra-systoles of clinical significance and conclude that "extra-systoles may offer valuable evidence of myocardial damage or strain, and their discovery should always lead to a careful cardio-vascular examination and to attempt to determine their cause."

It has been known for a number of years that the extra-systoles which occur in an already diseased heart may indicate beginning decompensation and in some instances, especially in the case of auricular extra-systoles, may be the premonitory sign of a developing auricular fibrillation, while frequent ventricular extra-systoles in arterio-sclerotic cardiac disease or following coronary thrombosis increases the danger of the fatal ventricular fibrillation. I have had occasion to follow a number of children with mitral stenosis who, for a period of years, had normal rhythm of the heart and then began to develop frequent auricular extra-systoles and it could be predicted that most of such patients would, sooner or later, develop auricular fibrillation. In our experience in the convalescent wards at Lymanhurst, in those children who were suffering from sub-acute rheumatic fever, extra-systoles are always considered of significance, and may be an early sign of acute carditis. In any acute infectious disease, the development of extra-systoles should be cause for caution. Most of the extra-systoles developing during an acute febrile disease disappear as the toxic condition subsides, but occasionally are an indication of acute cardiac involvement which may lead to permanent damage. However, extra-systoles of no clinical importance do occur in children not uncommonly, and these cases can be differentiated from those which accompany organic heart disease.

In our series of cases, we have studied twenty-six such patients. These children have been followed from one to eight years. In several patients, the extra-systole was heard on one examination and not heard at the next. In a number of instances, the extra-systole occurred at regular

intervals of either every second or every third beat and this condition remained permanent for as long a period as eight years. One such patient was a girl who was first seen at eight years of age, whose mother stated that she had been told when the child was three years of age that the child had an irregular heart. On the first examination a so-called *pulsus-bigeminus*, a normal beat alternating with an extra-systole, was heard; examination of the heart was otherwise negative and x-ray examination at this time showed the heart normal as to size and contour. This patient was seen repeatedly over a period of five years and at each examination the same persistent irregularity was present. Repeated examinations of the heart, including x-ray examinations, showed that the heart was otherwise entirely normal in spite of the persistent irregularity.

In these twenty-six patients with extra-systoles who have been followed over a number of years, in no instance did definite organic heart disease subsequently develop. Our criteria for assuming that an extra-systole is of no clinical importance is very similar to the criteria used in establishing the significance of a systolic murmur. In children and young adults, if an extra-systole is heard and no history of rheumatic infection or no enlargement of the heart is found on x-ray, it can be concluded that such extra-systoles are unimportant and will not lead to organic heart disease. Non-organic extra-systoles usually disappear when the heart is accelerated, while extra-systoles of organic nature usually increase on exercise. Most children with extra-systoles are not aware of the irregularity in their hearts; they require no treatment, and it is advisable not to mention the irregularity.

Neuro-Circulatory Asthenia

Another condition which often leads to errors in diagnosis in young people is the condition known as effort syndrome, soldier's heart, or neuro-circulatory asthenia. This condition is much more common in young adults but does occur in children of school age. Neuro-circulatory asthenia is of two main types: (1) a constitutional type which is commonly familial and which comes on early in life; and (2) the type which comes on after acute infectious diseases. The constitutional type is characterized by a gen-

eral physical inferiority. These patients are usually of the asthenic type; they complain of shortness of breath, pain over the heart, tachycardia and palpitation and skipping of the heart, easy fatigue, and profuse perspiration on the slightest exertion. On physical examination, it is common to find systolic murmurs over the apex or over the pulmonic area. The heart sounds are usually rapid and the response to exercise is poor. The blood pressure is commonly low at rest, and rises very rapidly on slight exertion. The hands are usually clammy and cyanotic and it is common to find a coarse tremor of the extended hands. These patients present many of the symptoms of hyperthyroidism but can easily be differentiated from this condition by the history and by studying the basal metabolic rate.

The type of neuro-circulatory asthenia which follows acute infections presents in a general way the symptoms of the constitutional type but in these cases the patient states definitely that his trouble came on after an attack of influenza or other acute infectious disease. Neuro-circulatory asthenia following acute infections usually subsides after a few months if the patient is restricted in his activities and is not made heart conscious by a faulty diagnosis.

Eighteen patients in our Lymanhurst series have been classified as neuro-circulatory asthenia. These patients were marked cases of the constitutional type, presenting the typical clinical picture. Many milder cases were classified in the "no heart disease" group. They were all asthenic individuals with many symptoms which might lead one to suspect cardiac disease. They complained of easy fatigue, refused to take regular gymnasium work in school, and did not enter into competitive sports. Four of them had been informed that they had heart disease. Six of them had apical systolic murmurs. X-ray examination revealed no cardiac enlargement in any case but four had so-called "drop hearts" and seven had hearts smaller than average. This finding of a small heart in such patients is well known and an attempt has been made to explain their symptoms on the basis of under-development of the heart. These patients have been followed a varying number of years. The diagnosis was not changed in any case but some of them showed marked improvement in symptoms. Neuro-circulatory asthenia is a definite clinical entity; the clinical

picture can easily be confused with organic cardiac disease if the condition is not borne in mind. More than anything else, such patients need the assurance that they have no heart disease. Often a careful, complete physical examination, followed by a confidential understanding discussion will produce marked improvement. The rapid heart rate of which they complain needs no medication; they should never receive digitalis. Outdoor graduated exercise within their physical limits should be encouraged.

Summary and Conclusions

1. Two hundred thirty-one patients diagnosed as having non-organic cardiac conditions have been followed over a period of years.
2. These patients fall into three main groups: (1) non-pathologic murmurs, (2) extra-systolic arrhythmia, (3) neuro-circulatory asthenia.
3. The change in trend of thought concerning the systolic murmur and the extra-systole is

discussed and the criteria for differentiating between the organic and non-organic abnormalities of this type are given.

4. The importance of not confusing neuro-circulatory asthenia with organic heart disease is stressed.

5. It is pointed out that while systolic murmurs and extra-systoles may indicate organic heart disease, it is possible to differentiate correctly the organic from the functional type of case.

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BENIGN LYMPHOCYTIC MENINGITIS OR ACUTE ASEPTIC MENINGITIS

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THESE terms are used to indicate a relatively rare syndrome which clinically simulates an acute purulent or tuberculous meningitis. Patients showing a moderate to severe lymphocytic pleocytosis in the cerebro-spinal fluid form a small but important group under the general classification of meningitis.

Considerable interest has been shown on this subject by a few medical writers and investigators. There is a dearth of information on this subject in the textbooks on clinical medicine and neurology. It seems that only a few have become sufficiently interested to investigate this matter. Until an article by Wallgren appeared in a Swedish Pediatric Journal in 1925, nothing definite was to be found on the subject. This article formed the subject of a comprehensive report in the American literature by Viets and Watts,⁷ of Boston, who observed five cases in the Massachusetts General Hospital.

About this time Doctor Epstein of Boston encountered a case with many similar character-

istics at the Boston Psychiatric Hospital. This patient showing cerebral symptoms of an organic nature was found to have the typical signs and blood findings of infectious mononucleosis, commonly known as "glandular fever." Because of the uniqueness of the condition, the case was reported in detail.⁴ Simultaneously there appeared a similar report in the Scandinavian literature by A. H. Johansen (1931). In both these articles the relationship between lymphocytic meningitis and infectious mononucleosis was emphasized.

Recently interest in lymphocytic meningitis was stimulated by some experimental investigations of a filtrable virus isolated from patients with this disease. The work of Armstrong¹ and of Rivers and Scott⁶ indicates that a filtrable virus is the causative agent of acute lymphocytic meningitis and tends to prove that the disease is a clinical entity. Some of this work has consisted of agglutination tests with convalescent and recovered cases for evidence of

anti-body formation and experimental inoculations with the spinal fluid from active cases. Thus far, the evidence, as stated, seems to prove that this condition is an entity rather than a symptom or complication.

An idea of the rarity of this condition may be gathered from the fact that two cases are recorded at the University Hospital and five at the Minneapolis General Hospital.³ All of these have been seen within the past eight or nine months.

As previously stated, these cases usually simulate the purulent and other types of meningitis, particularly the purulent forms. The symptoms are usually sudden in onset, occurring in otherwise healthy individuals. A history of sore throat and so-called "flu" or cold is present. In two or three days a severe headache with chills, nausea, vomiting and neck pains develop with variable mental reactions all the way from perfect lucidity to complete disorientation and confusion. The age group is wide, extending from fifteen to forty years. When first seen these cases cannot be differentiated from the other forms of meningitis.

The spinal fluid findings establish the diagnosis in practically all cases. The characteristic changes are quantitative. The qualitative changes depart very slightly from normal findings. The pressure is moderately increased, there is a moderate to severe lymphocytic pleocytosis ranging from fifty to one thousand or more cells per cubic millimeter of spinal fluid. A few polymorphonuclear cells may be found early but the lymphocytes are overwhelmingly predominant. In the five cases reported by Viets and Watts, the cell counts varied from 150 to 500 lymphocytes during the height of the disease. In a series of five cases recently recorded at the Minneapolis General Hospital the cell count averaged lower, but the lymphocytic predominance persisted. The sugar and chloride of the fluid are normal; the protein may vary slightly from the normal limits. Direct cultures and smears are negative. The colloidal reaction is normal, being of the end zone or meningitic type. On examination of the eye grounds, a slight blurring of the optic discs is found in most cases. Rarely is papilledema seen.

Naturally a clinical picture and spinal fluid findings like the above arouse one's curiosity as

to the type of meningitis one is dealing with. Knowing how grave the prognosis is in most cases of meningitis and how important early treatment is in certain types, this curiosity is well justified.

A few words relative to the differential diagnosis of the meningitides might not be amiss at this time. While the clinical history and examination are of assistance, the spinal fluid examination is usually decisive.

Recalling the findings in the lymphocytic type of meningitis, it becomes obvious that we can rule out a large group immediately, namely, the purulent forms. Tuberculosis meningitis can be ruled out quite readily as well, but may offer some difficulties.

The purulent types—pneumococcic, staphylococcic, streptococcic, meningococcic (epidemic)—have spinal fluid findings that are quite constant. The pressure is increased, the cell count usually runs very high into the thousands, the cells are overwhelmingly polymorphonuclear leukocytes. The fluid is cloudy or purulent. Direct smears usually show the offending organism. Cultures are positive. The sugar content is lowered. In many cases no sugar is found due to the glycolytic action of the bacteria in the fluid. The chlorides are reduced and the protein increased greatly. These types usually offer little trouble if the spinal fluid is examined even partially. A complete spinal fluid examination may be of academic interest but is not necessary.

It is very important to recognize the epidemic form. This may be differentiated by direct smear and a Gram stain which will, in nearly all cases, reveal the Gram-negative intracellular diplococci. Cultures for types are of value although not often feasible.

In differentiating tuberculous meningitis, the history of possible exposure and the physical examination are important. The age incidence, usually occurring in childhood, is of value. The onset is usually not as sudden except in the miliary forms. The tuberculin test and lung x-ray are of great value. The spinal fluid findings are quite constant and diagnostic to a high degree. The cell count, usually lymphocytic in character, is relatively low. The sugar content is almost invariably lowered, which is of great value in differentiating it from epidemic encephalitis. The pressure may be increased;

the protein is little changed. The chlorides are quite markedly lowered. Organisms may or may not be found on direct smears. Guinea pig inoculations are of great value. A pellicle frequently forms in the spinal fluid when it has been left at room temperature for some hours.

In luetic meningitis the spinal fluid findings may be of the lymphocytic type but this can be ruled out with blood and spinal fluid Wassermann tests.

Poliomyelitis may offer some difficulties in differentiating it from lymphocytic meningitis. The spinal fluid findings may be very similar. Mild forms, without paralysis, perhaps cannot be differentiated. Some authorities are not yet ready to accept lymphocytic meningitis as an entity but consider it as being related to, if not identical to, mild poliomyelitis. It is hard to believe, however, that cases of poliomyelitis with cell counts running into the hundreds, will not result in residual paralysis. Thus far, experimentation has failed to produce evidence that the lymphocytic form of meningitis is related to poliomyelitis. Intraspinal and intraperitoneal injections in animals of the spinal fluid of active cases of lymphocytic meningitis have failed to produce paralysis. Agglutination tests have borne this out, too. The course in recorded cases of lymphocytic meningitis is so definite and uniform that it is difficult to argue this point. No recorded cases of lymphocytic meningitis have developed residual paralysis. As an aid in the differentiation it might be stated that there are usually many polymorphonuclear cells in the spinal fluid during the early stage of poliomyelitis. The cell count is usually lower in poliomyelitis. The protein is increased. The occurrence in epidemics is also of value in differentiating it.

Epidemic encephalitis may be confounding as well. It is highly probable that many cases have been diagnosed epidemic encephalitis which were in reality lymphocytic meningitis. The clinical history and findings in encephalitis are usually suggestive. Mild cases, however, may be impossible to differentiate. Never has marked lethargy been noted in lymphocytic meningitis. The spinal fluid cell count is usually low; the sugar is elevated. Low normal or subnormal spinal fluid glucose militates strongly against acute epidemic encephalitis. Its long course is also of value in diagnosis.

There are other conditions which must also be considered in the differentiation. Most of these can be quite readily ruled out. Meningism, usually occurring in children associated with acute infectious diseases, shows an increased spinal fluid pressure, but absence of cells.

Mumps meningitis, a syndrome more common than formerly thought, can usually be ruled out. Birnberg⁷ has reported quite a few cases of this type. Herpes zoster, typhus, Malta fever, infectious mononucleosis, multiple sclerosis, post-infectious and vaccinal encephalomyelitis and brain tumors sometimes produce meningeal symptoms.

Aseptic meningeal reactions to septic foci in the cranium can usually be ruled out. Septic foci such as mastoiditis, sinus thrombosis, osteomyelitis of the skull, extradural abscess, intracerebral abscess, and septic emboli often cause meningeal symptoms. In these cases the cells in the spinal fluid may reach 500 or more but the polymorphonuclears usually run up to 30 per cent. The history and evidence of foci are of assistance in the diagnosis.

The course of lymphocytic meningitis is self limited. The prognosis for complete recovery without residual effects is good. In all cases recorded (which indeed are few at this time) the courses have been quite constant and definite. Recovery occurs in from two to six weeks. No sequelæ have been noted in any case. During the first few days after the onset, the usual symptoms of meningitis persist, such as headache, rigidity of the neck, nausea, vomiting, photophobia and, in some cases, disorientation. The fact that the prognosis is so good should justify an effort to make an accurate diagnosis. When one considers the unhappy prognostications we are compelled to make in most cases of meningitis, it is refreshing to be able to make a definite prognosis of recovery.

The five cases reported in Boston and those seen at the Minneapolis General Hospital all ran definite courses. By this I mean that recovery occurred within the two to six weeks period without sequelæ. There were, of course, individual variations in the symptoms. The spinal fluid may show an increase in cells after the symptoms have subsided.

The treatment is symptomatic and palliative. Repeated spinal punctures relieve considerably

the headache and mental disturbance. Morphine and sedatives and the usual supportive measures are indicated.

Report of a Case

On Monday, March 2, 1936, I was called to see an unmarried woman, twenty-three years of age, who had been in good health until a few days prior to the onset of her present illness. On February 26, she had had a sore throat and other symptoms of a cold. On the evening of the twenty-eighth, she had had a severe headache, neck pain, nausea, fever and chills. Her condition seemed worse on March 2.

She complained of severe headache, very rigid and painful neck, and some backache. She had been vomiting off and on for two days. She objected to the light and wanted to be left alone. Upon examination I found her temperature 102, pulse 106, and respirations 18. Her throat was slightly inflamed. The ears were normal. The eyes reacted to light and accommodation. Her eye grounds were slightly blurred. The Kernig and Brudzinski signs were mildly positive. She was quite clear mentally. There was no paralysis or loss of sensation. The tendon reflexes were slightly increased. There was no urinary retention. No rash was noted.

A spinal puncture revealed a moderately increased pressure. The fluid was clear. About ten c.c. were removed. The fluid showed a cell count of 1,200—all lymphocytes, which immediately raised the question as to the type of meningitis present. Direct smears showed no organisms. A specimen was sent to the State Board of Health, which reported the Wassermann was negative; the culture was negative; the protein and chlorides normal; the glucose normal. Guinea pig inoculation proved negative.

The Widal and blood Wassermann also proved negative. The blood findings the second day were WBC 9,800 (64 p.m.n., 30 lymph., 3 mono., 1 baso.) r.b.c. 4,230,000; Hgb. 88%.

The urine was concentrated, otherwise negative.

The blood pressure was 110-78.

A diagnosis of benign lymphocytic meningitis was made and a favorable prognosis given.

The headaches persisted to a variable degree for a week. The rigidity of the neck was very marked until about the eighth day. Her temperature varied from 100 to 102 for a week, after which it came down gradually until it was normal on the tenth day, where it remained. Her recovery was rapid after this and when the last spinal fluid examination was made on the twentieth day, it was found to be normal and her clinical symptoms had disappeared. At the present time she is perfectly well with no residual paralysis or other effects.

On communicating with several staff members at the University and Minneapolis General Hospital, it was found that the cases seen at the General Hospital were almost identical with mine. The onset, findings and course were similar. A diagnosis of benign lymphocytic meningitis seems justifiable. No doubt more cases will be reported in the near future and possibly an etiological agent discovered.

Summary

Lymphocytic meningitis is characterized by an acute onset, simulating that of the purulent forms of meningitis, with headache, nausea, vomiting, neck pain and moderate fever. The disease is self limited, lasting from two to five or six weeks. Recovery takes place without residual effects.

The cerebrospinal fluid shows a marked lymphocytic pleocytosis, without polymorphonuclear cells. The cells may reach 1,000 or more per cubic millimeter. Protein in the fluid is normal to slightly increased, but the sugar and chloride content do not vary from the normal range. The colloidal gold curve suggests meningitis. Thus far there is no evidence that it is infectious.

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CASE REPORTS

SURGICAL ABDOMEN SIMULATED BY VAGINAL SEPTUM AND FREE PERITONEAL BLOOD

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H. T., a white girl of thirteen, was admitted to the Wilson Hospital, October 15, 1935, complaining of abdominal pain, nausea and vomiting.

One year previously, she had what was diagnosed by another physician as acute appendicitis, with colicky pains in the lower abdomen, nausea and vomiting. There had been no symptoms for three or four months following this attack. Crampy lower abdominal pains, appearing at irregular intervals, then followed, but were dismissed by the unintelligent parents as "mild" appendicitis. There had never been any medical or other surgical disorders; she had never menstruated.

Eight hours previous to admission, lower abdominal pains had begun, becoming increasingly colicky and severe, followed after some hours by nausea and vomiting (twice). She could not localize the pain in either lower quadrant, and there appeared to be no radiation. There had been no bowel movement in twenty-four hours, and she had been unable to urinate since the pain became severe.

Examination revealed a well-nourished, healthy appearing girl of thirteen with secondary sex characteristics noticeably developed.

The abdomen was diffusely tender, and marked rigidity of the lower quadrants was present. No mass was palpable. Rectally, a tense, rounded mass low in the pelvis was felt, somewhat resembling a small, fetal head in shape. The hymen was perforate, the vagina patent, and there was no bulging.

Urinalysis was negative; leukocyte count 12,000; temperature 99.4°; pulse 110; respirations 26.

There was evidently an acute process in the lower abdomen, and torsion of an ovarian cyst, rupture of a graafian follicle, appendicitis, and possible intraperitoneal rupture of retained menstrual blood were considered.

Operation.—A suprapubic incision under low spinal anesthesia revealed a most striking picture. The drawing illustrates the long, cylindrical, distended vagina, on whose superior pole an infantile, firm uterus was perched. Neither the uterus nor the fallopian tubes were distended, but from the abdominal ostia, especially on the right side, dark blood was oozing. A few ounces of partially clotted blood were found in the lower abdomen.

Vaginal examination disclosed a complete transverse vaginal septum, about one and one-half inches internal to the hymen. The canal was painted with merthiolate, and a closed hemostat thrust through the membrane, releasing one and one-half pints of dark, liquid blood, with diminution of the vaginal distention. The tubes were not adherent so there appeared to be no contra-indication to relief of pressure. A kinked, adherent, quiescent appendix was removed and the abdomen closed.

Course.—Uneventful convalescence followed, with dismissal on the twelfth day. A normal menstruation began five weeks later, the flow being very dark. Menstruation has been regular every four weeks since that time.

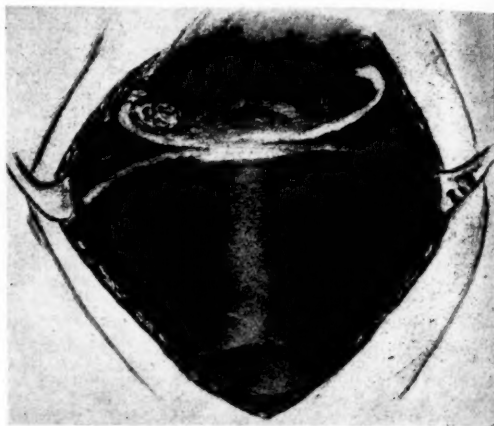


Fig. 1. Long, cylindrical, distended vagina (author's case).

Discussion

Gynatresia may occur at any level in the genital tract from the hymenal ring to the uterine fundus, with no presenting symptoms until menstruation begins. Progressive distension, above the obstruction, results in vaginal dilatation (hematocolpos), then uterine (hematometra) and finally tubal filling (hematosalpinx). Imperforate hymen is by far the most common form of gynatresia, Findley estimating that over one thousand cases have been reported, of which about one-third were acquired.² Vaginal septa are rare.^{3, 4, 7, 10, 18} Complete vaginal septum results in menstrual obstruction and is usually diagnosed and treated soon after puberty, although one case was not diagnosed until age twenty-six. Incomplete septum leads to dyspareunia^{3, 10, 18} and delayed labor.^{4, 18} An interesting form is the adherent labia minor in babies and young girls,^{5, 8, 10, 19, 22} which results in urinary retention. Technically, this can not be considered a gynatresia.

As specular and digital vaginal examinations are avoided during puberty, the diagnosis of a vaginal obstruction must be made indirectly, unless there is present a bulging, fluctuant imperforate hymen, usually bluish in color. Nelson¹⁷ reported a case of imperforate hymen, hematocolpometrosalpinx and free blood in the peritoneal cavity, diagnosed and operated as acute appendicitis (no rectal or vaginal examination made) in a girl of fourteen.

Bland¹ has noted leakage from the abdominal ostia of the distended tubes, resulting in retrouterine hematocoele, and when infected, local or diffuse peritonitis. Hirst²¹ has noted spontaneous rupture: (a) into the

CASE REPORTS

peritoneal cavity with consequent peritonitis, often fatal; and (b) into the vagina or through the hymen, with resultant poor drainage through the small opening, so that suppuration of the retained blood frequently occurred.

Older writers stress the dangers of relieving menstrual obstruction, because of: (1) stress on adherent tubes;¹⁷ (2) possible danger of peritonitis;¹¹ and (3) rapid decomposition and infection of retained blood.³ Sir J. Y. Simpson has stated, "Beware of making light of such a case to the patient's friends, and beware of telling them that the operation is harmless." Hirst¹¹ taught dogmatically that if the tubes were distended, they must be removed before the membrane should be incised, to prevent peritonitis. Despite these doleful predictions, many authors have incised or excised these obstructions under aseptic precautions, with no harmful results reported.^{1, 8, 9, 12, 14, 16, 17, 20, 22} Bickham³ believes that the membrane or septa should be crucially incised, then excised.

Conclusion

Gynatresia should be ruled out when lower abdominal pain or retention of urine occurs in a girl or woman who has never menstruated.

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ERYTHEMA EXUDATIVUM MULTIFORMI IN A PRIMIPARA COMPLICATED BY HEMORRHAGE FROM MUCOUS MEMBRANES*

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ONE is struck by the few reports in recent literature of severe hemorrhage complicating this rather common disease.

Etiology and History.—Erythema multiformi was first described by Hebra in 1866 as a systemic invasion by some unknown factor characterized by an acute circumscribed inflammation of the skin, confined almost exclusively to the papular layer, but occasionally involving the mucous membranes. Little that is universally accepted has been added relative to the causative factor of the disease. Various authors have suggested as probable causes, foods (especially those most commonly concerned in the production of urticaria), drugs (especially quinine and the barbiturates), and toxemia.

Kaposi in 1893 said: "Rarely the vulvo-vaginal mucous membranes are attacked."

Mracek in 1902 stated: "In many instances the mucous membranes are also attacked—except in the bullous type you only seldom come across vesical formation." Macleod in 1921 said: "In some cases the mucous membrane of the nose, conjunctiva, and genitalia, are attacked." Ormsby too, in 1921, observed: "It occurs but rarely upon the mucous membranes of nose, mouth and conjunctiva."

Essentially, according to the available literature, the involvement of the mucous membranes is rather infrequent.

Sir William Osler in 1895, in a published paper on the visceral complications of erythema exudativum multiformi, stated, "*** a variable number of visceral complications of which the most important are gastrointestinal crises, and hemorrhage from the mucous membranes." He reported three cases with hemorrhage from the bowel, and eleven cases with colic, vomiting, and diarrhea. He considered that the gastro-intestinal crises were due to a localized edema of the walls of the tract.

Symptoms.—Chilly sensations, fever, joint pain, inflammation of the conjunctiva, pseudo-membranous inflammations of the mucous surfaces, lips, tongue, mouth, nares, bronchi, and vagina sometimes occur. Mild to high temperatures, occasionally vomiting and diarrhea; at times a severe involvement of the sclera and conjunctiva, with resulting blindness, mild leukocytosis and early anemia are maintained. This with the typical macules, papules, vesicles, and bullæ of the skin, usually more or less symmetrically located, the whole frequently complicated with cervical adenitis, presents a truly "multiformi" of symptoms and eruptions.

*Read at the annual meeting of the Minnesota State Medical Association, Rochester, Minnesota, May 5, 1936.

CASE REPORTS

Treatment.—This is entirely symptomatic. Sutton and Sutton recommend daily flushing of bowels and kidneys with salines and alkaline diuretics, Salicin, ergot and adrenalin, with calamine lotion externally.

Results.—The milder type of case is usually self limited, running a course of a few weeks with a tendency to recurrences and occasionally severe complications which entitle the condition to a guarded prognosis and early hospital care.

It was not the intention of this discussion to present a dermatological resumé of erythema multiformi, its course, symptoms and treatment, but to depict some unusually severe hemorrhagic aspects which occurred in a patient.

Case History

Mrs. L. A. L., aged 24, and one of eight children raised on a farm, had been a family patient since girlhood. She was first seen on December 22, 1934. Family history was negative except that one brother had an entire webbing of the fingers of both hands. Her mother died of carcinoma of the pancreas.

The patient had always been well except for throat infections and a tonsillectomy had been performed some years before. She had married a month previous to her first visit. Her habits were excellent, kidney and bowel functions normal, and her weight, best, average and present, 120 pounds. Menses began at the age of fourteen, and were on a twenty-eight day cycle with slight cramps the first day, the last period having been December 13.

During the period between December 22, 1934, and September 11, 1935, the patient was seen and examined at the office nine times. Her general physical examinations were entirely negative. She had slight nausea during the first ten weeks of pregnancy. Pelvic mensuration was normal. Kidney function was normal. Blood pressure varied between 122-136 systolic and 78-86 diastolic. On August 29 the fetal tones were in the right lower quadrant, the head presenting. On September 11 she gave birth to a four and one-half pound boy, about ten minutes before my arrival. The stork was sitting on the chimney while I had to drive twenty-two miles. The delivery had apparently been rather precipitous, but there was no laceration. The placenta was delivered and on examination was found intact with the membranes. One c.c. of pituitrin was given as a routine. The patient's temperature was 99.6 and pulse 82 when I left. I talked to the nurse the second day. The patient's temperature was 98.7, pulse 74, and respirations 16.

On September 19, the eighth post-partum day, I was called to the farm home and got the following history: The patient had had a slight eruption on her body a few days before her baby was born, which had almost disappeared at the time of its birth, and she had neg-

lected to say anything about it at that time, I had not observed it, because I had seen her at night with kerosene lamps for illumination. On September 17, the sixth post-partum day, the eruption had recurred, had become rapidly generalized, involving the axilla, face, chest, abdomen, arms, thighs, and feet. The itching of her feet was most intense.

Papules, vesicles, and small bullae were present. Her temperature was 98.8, pulse 86, lochia normal, and uterus well contracted. She refused hospitalization because of financial reasons. On September 21 I was called hurriedly. She started to bleed from the vagina at 11 p. m. and flowed severely. Judging from the blood soaked pads, the hemorrhage had evidently been quite severe. I gave her pituitrin, ergotrate and intramuscular injections of ergot and finally packed the cervix with an iodoform pack, placed her in a car and took her to the hospital.

The skin showed concomitant eruptions from papules to large bullae, with small vesicles in the mouth, nose and vagina. At the height of the skin eruptions the abdomen and lower chest presented a reddish black appearance resembling a rather diffuse purpura hemorrhagica. She vomited a number of times after admission. Stools were frequent, at times tarry and at times there was fresh blood present. Epistaxis occurred, cough was present and coarse bronchial râles were heard. The mouth and vagina showed a number of vesicles. Following removal of the vaginal pack no more hemorrhage occurred.

Her temperature during hospitalization registered from 99.2 to 102.4. Pulse on admission was 120, but gradually dropped to 76. The hemoglobin was 65, r.b.c. 3,820,000, w.b.c. 12,000, clotting time 8 minutes. The blood Wassermann was negative. Ergotrate and pituitrin 1 c.c. were given intramuscularly every three hours on admission, and then continued, three times a day for three days. Salicylates in enteric coated tablets, 5 grains every three hours were given, and locally a boric acid zinc oxide ointment and calamine lotion were applied. Itching of the feet was very troublesome. She was discharged on the tenth day, the hemoglobin being 75 per cent, w.b.c. 9,000, the temperature and pulse normal and the skin eruption much improved. The skin did not return to near normal until October 18.

Previous to the skin manifestation she had taken no drugs at all. Quinine, phenolphthalein, and the barbiturates were all ruled out. She has had no recurrences to date and the baby has done well though mostly on artificial feeding.

Summary

A typical case of erythema multiformi is reported presenting involvement of the skin and mucous membranes, with vomiting and diarrhea occurring at term in a primipara, who developed postpartum hemorrhage on the eighth postpartum day, with bleeding from the vagina and rectum and a hemorrhagic purpura.

CLINICAL PATHOLOGIC SEMINAR*

Conducted by E. T. BELL, M.D.

Department of Pathology, University of Minnesota
Minneapolis

Toxic Adenoma of the Thyroid

Case 25.—A woman, sixty-five years old, was admitted January 31, 1936, stating that at the age of thirteen she had developed a swelling in her neck. A private physician told her that she had a goiter. She was given medication which seemed to cause the goiter to recede. However, ever since that time she had been nervous and excitable with a reduced tolerance to heat. She had remained quite thin in spite of a hearty appetite. She had had several nervous breakdowns requiring psychotherapy.

In August, 1935, she became weak with orthopnea, dyspnea and swelling of the ankles. A private physician advised rest and Lugol's solution. She responded fairly well to treatment; the swelling of her ankles and feet subsided. In October, 1935, she had a recurrence of symptoms and in addition had a smothering sensation in her chest and neck and rapid pounding of the heart; she had extreme weakness. She came to the outpatient department and was sent to the hospital.

The temperature was 98.4°; pulse 160; respiration 22; blood pressure 190/78. The history by systems was essentially negative. She was undernourished, very nervous and had many purposeless movements; dyspnea quite marked; skin flushed, warm and moist. A hard nodule could be felt in the substernal notch which seemed to move upward on swallowing; no definite exophthalmos; von Graefe's sign was negative. Moderate emphysema was noted over the chest and a few crepitant râles were heard over both bases. Heart rate extremely rapid, forceful and irregular; the heart was fibrillating; a systolic murmur was heard over the apex and at the base. The liver was two fingers below the costal margin in the right mid-clavicular line and one finger below the umbilicus. There was moderate pitting edema of the anterior aspects of the legs and over the sacrum. The reflexes were hyperactive. Babinski's sign was negative.

Urinalysis: Albumin +; an occasional red blood cell; an occasional pus cell; specific gravity 1027. Two later examinations of the urine gave similar results. Blood: hemoglobin 70 per cent; red cells 3,930,000; leukocytes 10,400 with 70 per cent polymorphonuclears, 24 per cent lymphocytes and 6 per cent monocytes. Rytz and Kahn tests were negative.

An electrocardiogram showed slight lowering of the QRS, auricular fibrillation and a low T₂ which suggested some myocardial damage. A six-foot study of the heart and chest revealed pleural effusion on the right with possible calcified substernal thyroid. X-ray of the lower spine showed hypertrophic changes in the lumbar spine and also multiple biliary calculi. The basal metabolic rate on admission was +50.

She was given digitalis and Lugol's solution. Frequent thoracenteses were done with removal of about 1,000 c.c. of fluid each time. She got along fairly well and the basal metabolic rate on March 4 was 32. On March 14 she developed a chill, pain in the chest and the temperature rose from normal to 102.2°. Examination revealed an area of consolidation in the left chest. X-ray showed increased density in the lower two-thirds of the left lung, thought to indicate pneumonia. The temperature remained between 102° and 104°. She became very listless, drowsy and extremely weak; refused to eat or take liquids. On March 18 she became stuporous. On the following day the respirations became rapid and labored; there was extreme dyspnea and cyano-

sis; the pulse became rapid and thready. She expired March 19 after forty-eight days in the hospital.

Postmortem Examination: The body was emaciated; there was slight jaundice; no edema; 200 c.c. of purulent fluid in the left pleural cavity; no fluid in the other serous cavities. The heart weighed 260 grams; the valves were normal; there was moderate atheroma and calcification of the coronary arteries with a little narrowing of their lumens; there were no scars in the cardiac muscle. There was well developed bronchopneumonia in the lower lobe of each lung. There was no appreciable chronic passive congestion of the liver or the spleen. There were a few small calculi in the gall-bladder and some dilation of the common bile duct but no stones were present in the duct at this time. The genito-urinary organs were normal. There was moderate atheroma and calcification of the abdominal aorta.

The thyroid gland measured 11 x 7.5 x 5 cm.; one portion extended down into the thorax as far as the arch of the aorta and caused some compression of the structures passing through the thoracic inlet. On section the thyroid showed numerous cysts and areas of calcification; it was composed of large adenomas. Microscopically there was extensive necrosis and degeneration of the adenomas but there were also areas of marked hyperplasia of the parenchyma.

Diagnoses: (1) Toxic adenoma of the thyroid; (2) Empyema of the thorax; (3) Bronchopneumonia; (4) Moderate coronary sclerosis.

Comment.—The patient had evidently suffered from hyperthyroidism due to toxic adenoma for a long time. Evidently there was cardiac decompensation at times; the edema of the legs was presumably of cardiac origin. Death was due to bronchopneumonia and empyema. It is unusual to find cardiac decompensation resulting from hyperthyroidism unless there is a previous disease of the heart. In this case there was some coronary disease but it was not very marked.

Adherent Pericardium

Case 26.—A boy of thirteen was first admitted on June 6, 1935. He had been perfectly well until April 13, 1935, when he developed scarlet fever. About one month later he began to have swelling of the ankles and legs and some pain in his knee joints. He remained at home on modified rest but the swelling gradually increased. On June 1 he developed a sudden severe pain over the precordium. A physician advised immediate hospitalization.

On admission it was found that both knees and the right shoulder were swollen and very tender to palpation. Auscultation revealed systolic and early diastolic murmurs at the apex of the heart.

Two urinalyses showed the urine to be full of red blood cells with occasional hyaline and granular casts. The hemoglobin was 63 per cent, red cells 3,400,000 and leukocytes 9,900. An electrocardiogram showed a low potential in all three leads with a suggestion of swift T-waves in the first and second leads indicating rheumatic heart involvement. A blood culture taken several days after admission was positive for Gram-negative diplococci, type undetermined, the significance being uncertain.

The patient was put on the usual routine of bed rest,

salicylates, sedatives, iron and digitalis. He had fever ranging from 101° to 103°. The pain in the precordium did not abate. X-ray of the chest and heart about one week after admission showed marked widening of the cardiac shadow which was thought to indicate pericardial and pleural effusion. X-rays taken at two-week intervals continued to show pericardial and pleural effusion. Several thoracenteses were done, which seemed to improve the patient's condition considerably. He responded very well to cardiac and supportive therapy. His temperature gradually returned to normal and he was discharged August 23, 1935.

He was followed at the heart clinic; was constantly kept on digitalis. He got along fairly well until February 19, 1936, when he developed a cough, dyspnea, orthopnea and tachycardia. He was admitted to hospital the following day.

The temperature was 100.6°; pulse 126; respirations 20; blood pressure 86/66. He had moderate difficulty in breathing. The lungs were essentially negative to auscultation. The heart was markedly enlarged to both left and right. The pulse was rapid and regular. Systolic and diastolic murmurs were heard transmitted to the axilla. A thrill was palpated at the apex and over the aortic region. There was no edema of the extremities.

Urinalysis was essentially negative. The hemoglobin was 70 per cent; red blood cells 4,000,000; leukocytes 11,750. Sedimentation time was two hours. A blood culture was negative. X-ray of the heart and esophagogram showed enlargement of the heart to left and right; some pressure on the barium-filled esophagus. However, the amount of pressure was not sufficient to indicate that the entire cardiac enlargement was on the basis of enlargement of the left auricle. There was some congestion of the lung fields. Conclusion: cardiac enlargement from mitral disease with probable pericardial effusion and pulmonary congestion. An electrocardiogram showed left axis deviation with auricular fibrillation.

The patient was put on digitalis and quinidine with supportive therapy but he gradually became more decompensated; the heart action became much weaker. He died March 26 after thirty-five days of hospital residence.

Postmortem Examination: There was no edema or jaundice; no ascites. There was 300 c.c. of clear fluid in the right pleural cavity; complete obliteration of the pericardial cavity by old fibrous adhesions. The fibrous pericardium was attached firmly anteriorly to the sternum and laterally to the lungs. The heart weighed 440 grams and all of its chambers were markedly hypertrophied and dilated. There was an old thrombus in the right auricle but there was no disease of any of the valves. There was well developed terminal bronchopneumonia. There was marked chronic passive congestion of the liver.

Diagnoses: (1) Adherent pericardium with hypertrophy and dilation of the heart and cardiac failure; (2) terminal bronchopneumonia.

Comment.—This is a common result of rheumatic fever in which the pericardium became involved but the valves escaped. Pericarditis is a very common complication of acute rheumatic fever; in most instances the valves also are affected. It has recently been claimed that adherent pericardium alone, without any valvular disease, does not result in heart failure but this case demonstrates clearly that hypertrophy and dilation of the heart and heart failure may result from adherent pericardium alone. The adhesion of the outer surface of the fibrous pericardium to the adjacent structures is believed to be important in causing the overwork of the heart.

Syphilitic Aortitis

Case 27.—A man, fifty years old, was admitted to hospital January 25, 1936. Two years before he had been told by a physician that he had high blood pressure. Soon after this he noticed that his ankles and legs were swollen. Shortly he developed dyspnea on slight exertion, orthopnea and spells of dizziness, especially on closing his eyes. The dyspnea and orthopnea became progressively worse. Two months before admission he developed a painless productive cough. The past history revealed that there had been gonorrhea at the age of seventeen, and syphilis at the age of eighteen with inadequate treatment for both. Otherwise the patient's health had been good to excellent up to the present illness.

Temperature was 99.8°; pulse 116; respirations 34; blood pressure 220/104. He was coughing considerably and appeared quite dyspneic and orthopneic. The pupils were dilated, did not react to light and reacted only very sluggishly to accommodation. The eye grounds showed marked hypertensive changes with edema of the discs and slight edema of the retina; there were caliber changes of the lumens of the arterioles; a few scattered hemorrhages. Systolic and diastolic murmurs were heard over the aortic area. The heart was markedly enlarged to both left and right. Numerous coarse moist râles were noted throughout the entire chest and dullness was noted over the extreme base of the right chest. The liver was palpable 3 fingers below the costal margin. There was no evidence of ascites; there was grade 4 pitting edema of the feet, ankles and legs.

Urinalysis: Albumin +++++; 100 to 150 pus cells; an occasional hyaline cast; specific gravity 1023. Tests repeated over a period of about 2 months gave similar results. In several specimens a few red blood cells were noted. Blood: hemoglobin on admission 78 per cent; leukocytes 16,150; red blood cells 3,620,000. Urethral smears showed numerous pus cells and bacteria; no evidence of gonococci. Spinal fluid: 68 mg. of protein; 55 mg. of sugar; no cells; Wassermann positive; Rytz weakly positive; colloidal gold curve was 5555533100. An electrocardiogram showed a low ST₁, diphasic T₂ and left preponderance suggesting some myocardial damage. X-ray one week after admission showed probable effusion or pneumonic process in the left lower lobe and enlargement of the heart, left ventricular type.

Venesection on the day of admission removed 600 c.c. of blood. The patient was put on a régime of strict bed rest, morphine, aminophyllin and codein. He had difficulty in voiding and was catheterized daily. On February 6 it was noted that the sensorium was becoming cloudy. On March 5 therapy for syphilis was instituted and he was given 1 gm. of tryparsamid intravenously; on March 9, 2 gm. and on March 14, 2 gm. On March 16 he began to complain of a high degree of visual loss. Examination showed that the margins of the discs were slightly indistinct; this was thought to be a toxic reaction to the tryparsamid injections. Two days later he had complete loss of vision. He did not respond to routine cardiac and supportive therapy. He gradually grew weaker and expired on April 2, about two months after admission.

Postmortem Examination: The body was somewhat emaciated; there was no edema or jaundice. There was very little fluid in the serous cavities. The heart weighed 690 grams; there was marked hypertrophy and dilation of the left ventricle. The aortic valve leaflets were separated at their commissures and the margins of the leaflets were rolled and thickened; the root of the aorta was markedly dilated and showed the characteristic puckering and thickening that are found in syphilitic aortitis. This is a typical example of syphilis of the aorta with involvement of the aortic valve. The other valves were normal. There was hypertrophy and dilation of the right ventricle which was interpreted as compensatory for the failing left ventricle. There was marked chronic passive congestion of

CLINICAL PATHOLOGIC SEMINAR

the liver. The prostate was enlarged and showed also a diffuse suppuration with a hemorrhagic cystitis. There was marked terminal bronchopneumonia. The brain showed no gross changes but microscopically there was a round cell infiltration of the meninges indicating syphilitic meningitis.

Diagnosis: Syphilitic aortitis.

Comment.—The interpretation of this case is somewhat difficult. Evidently the chief lesion in the terminal part of the illness was syphilis of the aortic valve with resulting cardiac failure. Syphilitic meningitis is also present. However, the eyeground changes and the high blood pressure indicate strongly that the patient suffered first from a primary hypertension. Apparently the syphilitic aortitis developed in a patient who already had symptoms of primary hypertension.

Acetylsalicylic Acid and Barbitol Poisoning

Case 28.—A woman, forty-two years old, was admitted first on January 26, 1936. In December, 1934, she had broken several ribs. A physician gave her barbitol tablets to alleviate the pain. Following this she gradually became addicted to barbitol. Later she developed a definite psychic upset and thought that people were trying to spy on her and that the clock was trying to converse with her. At this time she also had "goiter trouble" but this difficulty disappeared immediately after a local chiropractor had given her some spinal adjustments. She had also been troubled with asthma for a number of years; no medication but alcohol could alleviate this. During the year previous to admission the symptoms could only be aborted by the ingestion of large amounts of alcohol and the patient had been drunk on four or five occasions. On one occasion she is said to have drunk a quart of whiskey in one day. She continued to take barbitol in large doses and her husband finally persuaded her to enter the hospital for cure of this addiction.

Examination was essentially negative and she was given the routine therapy for chronic barbitol addiction. She remained in the hospital twenty-one days and was discharged apparently cured of the habit.

Following discharge she got along very well until the latter part of March, 1936, when she developed what was thought to be "stomach flu." She had a severe cough associated with diarrhea and vomiting. After

these symptoms had persisted for approximately four weeks she started to take aspirin tablets and luminal for relief. In a period of eight days she took about 1000 grains of aspirin and a large number of luminal tablets. Following this she developed marked vaginal and rectal bleeding and had several large emeses of blood. It was thought that she lost about 1 quart of blood each time. She took another 500 grains of aspirin and considerable amounts of luminal. Following this she became stuporous and was admitted to the hospital on April 28.

The temperature was 102°; pulse 130; respirations 40; blood pressure 108/68. She was semicomatose. The eyes reacted to light; the corneal reflexes were inactive. She was bleeding quite profusely from the right ear. Clotted blood was noted in the nares. Auscultation revealed that the heart sounds were barely audible, although the rhythm was regular. A diffuse rash was noted over the neck, shoulders and numerous purpuric spots from 1 to 5 cm. in diameter in the skin over the entire body. There was considerable vaginal bleeding. The hemoglobin was 90 per cent; 4,700,000 red cells; 10,000 leukocytes; 82 per cent polymorphonuclears, 11 per cent lymphocytes, 7 per cent monocytes. Spinal fluid removed on admission was clear, colorless and contained 4 polymorphonuclears. X-rays of the skull were negative.

She bled continuously from the mouth, ears, vagina and rectum. She gradually grew weaker, respiration became more difficult and she expired about eight hours after admission.

Postmortem Examination: There was 300 c.c. of blood in the stomach; the mucosa of the stomach showed diffuse bleeding; there was some old blood in the small and large intestines. There was fresh blood in the cavity of the uterus. Aside from evidences of hemorrhage, none of the organs showed any evidence of disease that was visible grossly. There were petechial hemorrhages in the substance of the cerebrum and cerebellum.

Diagnosis: Acetylsalicylic acid and barbitol poisoning.

Comment.—The skin eruption is interpreted as a toxic purpura and the bleeding from the nose, mouth, ears, gastro-intestinal tract and uterine cavity are also interpreted as effects of the poisoning. It is to be noted in this case that the amount of aspirin taken is far in excess of the amount ordinarily used even by aspirin addicts.

Libby's Hawaiian Pineapple Juice Omitted From the List of Accepted Foods

The Council on Foods reports that the Hawaiian Pineapple Juice of Libby, McNeill & Libby, Chicago, was accepted by the Council in 1934 with the permissible claim that it contains from 9 to 11 Sherman units of vitamin C per ounce and that it is practically equivalent to fresh fruit juice in nutritional values (vitamin C slightly reduced). In December, 1935, the concern requested that acceptance be withdrawn, and stated that it contemplated no change in its methods of manufacturing Pineapple Juice, and that there was no intention on its part to deviate from the principles embodied in the rules and general decisions of the Council. Based on this request the Council drew up an announcement of withdrawal of acceptance. Since that time, however, advertising for the product which has appeared in publications such as the *Saturday Evening Post* forced the Council to recast its previous statement and to inform the medical profession of the status of the product in the light of the claims now ad-

vanced. In general, the product is being advertised both as a drink to yield energy and as a food to be used in the ever popular reducing diet propaganda. Claims that the consumption of pineapple juice builds up the resistance of the body against infections of the upper respiratory tract and that Libby's Pineapple Juice is of particular significance in the reduction of weight are no more warranted than the fantastic claim that the consumption of pineapple juice will "sweep aside morning acidity." In reply to the Council's request for any evidence which it might have in support of the claims made, the company furnished a statement by John A. Killian, Ph.D., a commercial chemist of New York. In the opinion of the Council the comments offered by Dr. Killian do not warrant any alteration of the report. In view of the present evidence the Council voted that Libby's Pineapple Juice be removed from the list of accepted foods because the product is promoted in conflict with the Council's rules by the use of grossly exaggerated and unjustifiable claims which are believed to be seriously misleading to the public.—(J.A.M.A., Aug. 29, 1936, p. 660.)

EDITORIAL

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J. R. BRUCE, Saint Paul

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Deaths from Heat Prostration in 1936

VITAL statistics will eventually show how many deaths occurred last summer throughout the country from excessive heat. The numbers will run into the thousands. It will probably never be known how many additional deaths were indirectly due to the heat in invalids and elderly individuals.

Some interesting observations on the subject appeared in the *Statistical Bulletin* of the Metropolitan Life Insurance Company of July, 1936.

It seems strange that the North Central states, particularly Minnesota, Michigan, Wisconsin, Illinois, Ohio and Missouri, suffer the most, with the exception of Arizona and Nevada, the two states having as a rule the highest death rate from this cause. On the other hand, Arizona's neighboring states, New Mexico and Colorado, and Nevada's neighbors, Oregon, Idaho and

Utah, are much below the average in this regard.

Perhaps the most remarkable fact is that the southern states, North Carolina, South Carolina, Florida and Alabama, for example, generally are at least 50 per cent below the mean for the United States.

It was particularly noticeable last summer that elderly individuals constituted the majority of those affected, while infants under one year of age were much more frequently affected than in any other year of life. Males as a rule are affected three times as frequently as females, and negroes several times as often as white people, occupation doubtless having a bearing in both instances.

In Minnesota during July some 670 deaths were caused primarily by the heat and in 334 more heat was a contributory cause. Of the 670 deaths, 211 occurred in Minneapolis, 134 in Saint Paul and 13 in Duluth. Of the 334 deaths, 182 occurred in Minneapolis, 70 in Saint Paul and 5 in Duluth. Our State Department classifies all cases of heat prostration or exhaustion, heat apoplexy or sunstroke under the one heading of excessive heat. The cases in which excessive heat was contributory were for the most part individuals suffering from heart or kidney disease, but it seems likely that many instances in which heat was reported as the primary cause of death were of abnormal individuals. Many practicing physicians saw no heat prostration patients all summer while institutions such as county homes and city hospitals reported numerous cases. Deaths were so numerous in a short period of time that an epidemic was simulated.

Poliomyelitis Today

ALMOST every year some section of the country reports poliomyelitis in epidemic form. Last year the epidemic started in North Carolina and spread along the Atlantic Coast. In 1934 it was in California and other Western states. In 1933 the disease was mildly epidemic in North Atlantic regions and much more severe in these same regions in 1931. This year an outbreak of the disease in epidemic proportions be-

EDITORIAL

gan in Alabama early in July, but was rather limited to that state and the adjoining states of Tennessee and Mississippi.

Minnesota has been quite fortunate this year, only twenty cases having been reported up to September 21. Of these twenty, three occurred in Minneapolis, two in Duluth, one in Saint Paul and fourteen in other parts of the state. Sporadic cases may be expected each year during the summer months in most of the states.

In spite of research and epidemiological study of the disease little has been learned which materially helps in the prevention of the spread of the disease or the cure of the individual patient. A concise résumé of our knowledge of the disease by Kenneth F. Maxcy, newly appointed Professor of Preventive Medicine and Public Health at the University of Minnesota, recently appeared.* The author calls attention to the fact that it has been pretty definitely proven that the virus of the disease gains entrance to the human body through the nasal mucous membrane, is neurotrophic and gains access to the spinal cord through the olfactory nerves, bulb and brain stem. The virus has a special affinity for the anterior horn cells of the cord.

The disease is spread from person to person just as influenza, measles, and chickenpox are. The presence of virus-neutralizing substances in the blood of the majority of adults indicates that the disease is much more prevalent than the comparatively small number of reported cases would lead one to believe. Changes in the spinal fluid and paralysis constitute the only definite diagnostic criteria. An indeterminate but large number of adults acquire the infection and temporarily become unknown carriers. This being the case, quarantine is ineffectual, although isolation of cases and contacts is distinctly worth while.

There is little evidence that the administration of immune sera before exposure, before the onset of paralysis but after spinal fluid changes have been determined, or after the appearance of paralysis, accomplishes any good. There are some, however, who maintain that immune serum treatment is all we have that offers any hope of limiting the attack, and that it should be used.

The status of Brodie's vaccine has not been

definitely established. Kolmer's live virus was proven dangerous.

Studies of the value of intranasal medication during epidemics is the latest development in the study of the disease. Weak solutions of picric acid (1 per cent) alone, or with alum, instilled into the nostrils may have some direct action on the virus or may make the nasal mucous membrane less permeable to the virus. It seems distinctly worth trying during epidemics.

Blood Pressures for Ten Cents

A RATHER unusual conflict has recently arisen over the establishment of a booth at Coney Island where pleasure seekers are invited to pay ten cents and read their own blood pressures. A placard in the booth refers individuals to their family physicians for the interpretation of pressure readings.

As a consequence the State Department of Education in New York has asked the State Supreme Court to order this and other machines of the kind out of existence on the ground that their operation constitutes the practice of medicine.

We do not know for a certainty what the real purpose of the booth is—to collect dimes or to drum up practice for the medical profession. We are reminded of a publicity stunt inaugurated in Chicago some twenty years ago by the City Health Commissioner during Health Week whereby a high blood pressure apparatus with water substituted for mercury was set up in the City Hall and a continuous line of citizens awaited their turn at having their blood pressures taken. We suspect that certain individuals with high blood pressure derived considerable satisfaction in seeing the column of water rise up and up, some feet above normal levels.

We do not know what the decision of the New York Supreme Court will be. After all, the determination of blood pressure is a medical procedure and we do not know what effect a visit to Coney Island would have on blood pressures in general. Doubtless a ride on a roller coaster or ferris wheel, eating a "hot dog" or drinking pink lemonade would produce some effect. Assuming the blood pressure apparatus at Coney Island to be accurate, the readings probably would not represent true pressures.

Not to become too excited over the present

*Maxcy, Kenneth F.: Changing conceptions of the prevention of acute anterior poliomyelitis. *Am. Jour. Med. Sci.*, 192; 436, (Sept.) 1936.

EDITORIAL

controversy, seriously however, the estimation and interpretation of a blood pressure reading require some discrimination and experience. Many a patient has been needlessly alarmed by the improper interpretation to a patient of his pressure reading. A neurotic individual has not infrequently been thrown into a most distressing mental state of apprehension by the remarks of a medical adviser about the significance of an elevated blood pressure. It is likely that pressure readings at a place like Coney Island would cause more harm by unnecessarily alarming certain individuals than any good it might do in referring individuals with elevated pressure to their physicians for medical supervision.

After all, medical instruments in the hands of those not trained in their use are dangerous to the public welfare, even though they may be such seemingly innocuous instruments as manometers. It is to the credit of some of the manufacturers of medical instruments that they appreciate this fact and have refused to sell manometers to those outside the profession.

Positions For Doctors With the Civilian Conservation Corps Activity

At the present time there are a number of positions available with the Civilian Conservation Corps activity in the Seventh Corps Area for young men of the medical profession. Doctors having appointments in the Medical Corps Reserve of the Army and Navy may be ordered to duty under their commissions. Those who are not members of the Reserve Corps may be given appointments or they can be employed on a contract basis.

These positions offer the young physician an opportunity to get started in his profession and after a short time to begin his own private practice. Such training will give the medical profession a better insight on the manner of evacuating and caring for the sick and injured in a national emergency.

Those interested in obtaining positions as medical officers with the Civilian Conservation Corps may communicate with the CCC Surgeon, Headquarters Seventh Corps Area, Federal Building, Omaha, Nebraska.

Navy Medical Corps Examinations

Competitive examinations for appointments to the Medical Corps of the United States Navy will be held in December, 1936, and again in late May or early June, at the Naval Hospital, Great Lakes, Illinois; at the Naval Medical School, Washington, D. C., and at the Naval Hospital, Mare Island, California.

A candidate must be a citizen between the ages of

twenty-one and thirty-two, a graduate of a Class A medical school, must have had at least one year's internship in an accredited hospital. He is also required to pass a rigid physical examination and is required to certify that he is free from all mental and physical defects.

Further information may be obtained by addressing The Commandant, Ninth Naval District, Great Lakes, Illinois.

Serum Treatment of Acute Poliomyelitis

In more than one locality this summer the perennial question of the efficacy of convalescent serum in acute poliomyelitis will again be raised. A diagnosis of poliomyelitis can be established in a large percentage of cases days prior to the onset of paralysis, particularly during an epidemic. It is assumed that early diagnosis offers optimal conditions for effective treatment with convalescent serum. While it is contended by some that there is a smaller incidence of paralysis in the group of cases diagnosed in the preparalytic stage than in those seen after paralysis has set in, independent of serum administration, such a conclusion is not certain, as cases seen after paralysis frequently give a history of a prolonged preparalytic phase. However that may be, the practical results that have been obtained in three recent reports are alone enough evidence to warrant continued use of serum. Large doses of convalescent serum (100 c.c. or more) given intravenously and small doses (from 10 to 15 c.c.) intraspinally at the time of the spinal puncture are recommended. The intravenous dosage should be repeated in from twelve to twenty-four hours if the temperature is still elevated or symptoms are not subsiding. If future epidemic results can duplicate those of Jensen (Proc. Roy. Soc. Med., 28:1007, June, 1935), Clowie (Ann. Int. Med., 8:521, Nov., 1934), and Levinson (Illinois M. J., to be published), the treatment of acute poliomyelitis will be satisfactory and harmless to the patient. There is no other treatment that is even of debatable value. The early and continued use of orthopedic measures will improve results in the acute paralytic disease and in cases in which only paresis appears.—(J.A.M.A., Aug. 8, 1936, p. 432.)

The Antiscorbutic Factor in Cow's Milk

Twenty-four years ago Frolich demonstrated that cow's milk possesses antiscorbutic properties and his studies stimulated efforts to evaluate the amount of vitamin C contained in milk. Wide variations in vitamin C values are due to a number of influences, some beyond the control of the consumer and some which he can regulate provided he has interest and knowledge. Partial or complete loss of cevitamic acid (vitamin C) in milk is due chiefly, if not entirely, to oxidation, which may be induced by standing, by exposure to heat, light, air, and by the presence of metallic catalysts, especially copper. Nevertheless the experiments of King and Waugh have shown that the dairy industry may now produce pasteurized milk as rich in cevitamic acid as was the same milk in the raw state before pasteurization. In the interests of high milk production, rations fed can be uniform and of good nutritive quality at all times. Pasteurized milk likewise can supply not only uniform amounts but as much of this essential vitamin as fresh milk. Serious losses in the antiscorbutic factor may occur in the home or hospital as the result of such simple procedures as mixing or decanting. A significant decrease in vitamin C has been reported in milk that stood from six to eight hours in the dark, even though it was cold. Reheating milk also lowers its potency.—(J.A.M.A., Aug. 22, 1936, p. 589.)

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association

B. J. Branton, M. D.
L. H. Rutledge, M. D.

W. F. Braasch, M. D., Chairman

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A. N. Collins, M. D.

Your Standing Orders

Now is the time to consult your State Representative and your Senator. Ask him what his views are on all of the problems that concern Organized Medicine and the Public Health in Minnesota today.

THIS IS IMPORTANT. Do not neglect it.

Medical Co-operatives

Talk of medical coöperatives is in the air.

A Northwest farm organization is sending out printed instructions to its members on how to form a medical coöperative.

Requests for information about such coöperatives have been made from rural sections of Minnesota to the Attorney General; one plan suggested by a coöperative creamery was definitely disapproved.

A letter appeared within the last month in a rural weekly from a farmer whose son is now receiving complete care in a veterans' hospital, though he spent only a few months in a training camp in the United States during the war. Why should the veterans have this privilege, asks the farmer, when the rest of us have to pay our way?

For Cheaper Funerals

The farmer cites a coöperative in Economy, Indiana, as his answer. The Economy venture offers a fairly complete medical service, according to its Constitution and prospectus, for 68 cents a month for individuals and \$1.30 a month for families.

In Minneapolis, the Fidelity Service Association is a source of disquiet to funeral directors

because it is directed particularly at funerals for low prices. The contract has a provision for medical care at low prices, too, for its members. The funerals are to be secured, at the present time, from one establishment. The medical care is to be secured, too, from one so-called clinic which advertises in the newspapers and which is said to include among its members cultist practitioners. Membership is open only to Union members who pay a fee of \$1.00.

Not so Acute

Notwithstanding these isolated episodes in Minnesota and the friendly reception that the suggestion of coöperatives as the way out of all our current social ills received at the recent Minnesota Conference of Social Work, the question is not so acute—as yet—in Minnesota as it is elsewhere in this section.

Wisconsin is confronted, however, with the problem of an Interim Commission of the Legislature to study health insurance and costs of medical care in Wisconsin. What this commission may report and what reception the report may receive in the liberally inclined Wisconsin sessions remains to be seen. The well organized and alert Wisconsin State Medical Society is aware of the situation and its possibilities and may be relied upon, without doubt, to direct any resulting legislation into sound and proper channels.

More Social Security

The question of whether or not an attempt will be made to extend Social Security legislation to some form of sickness insurance at the forthcoming session of Congress is being discussed in many quarters. The answer waits, no doubt, upon the results of elections and also upon the

enlightenment and energy with which Organized Medicine maintains its stand.

How does the candidate from your district stand on these important questions?

Padding Bills

Two physicians in Minnesota have been investigated by G-men for padding and misrepresentation in bills submitted for medical care of injured WPA workers.

In these cases the charges are said to include gross misrepresentation among other more serious offenses of the number of calls made on one injured worker.

G-men made their investigation recently and the whole case awaits action in Washington.

Fortunately these two physicians are not members of the Minnesota State Medical Association, and were not approved by the Association for inclusion on the list of men accredited to do this work.

It is unthinkable, however, that any physician licensed to practice medicine in Minnesota, even if he is not a member of Organized Medicine, should be guilty of such a violation. The action of these men is a blot on the reputation of all medical men in the State.

In addition, they lay themselves open to certain detection and prosecution. This phase of WPA work is under the direct charge of the United States Employees Compensation Commission and is not subject to hasty or careless handling. Even small infractions and carelessness will be checked on by G-men and duly reported.

For their own sakes and for the sake of the high esteem in which the doctor should be held in every community, members of the Minnesota State Medical Association should lean over backwards to be meticulously careful and honest in their dealings with government agencies of whatever character, federal, state or county, that may be paying bills for medical care.

It should be obvious to all of us that the surest way to defeat all efforts toward a fair and economically sound arrangement for medical care of the indigent or needy is for anybody—even one irresponsible member—to lay himself open to the charge of profiteering at the expense of the government in the delivery of medical care.

Malpractice Rates Go Up!

(Monthly editorial prepared by the Medico-Legal Advisory Committee)

Insurance companies are steadily losing money on their malpractice insurance in Minnesota.

In many communities, the Aetna Casualty and Surety Company has paid out more money in the settlement of claims than it has taken in in premiums.

In one community, at least, the company is thinking seriously of retiring completely.

The Aetna Company, last to raise its rates, now announces an increase from \$29 to \$33 as the basic rate for \$10,000 and \$30,000 coverage for group insurance in Minnesota, effective immediately. The new rates are not to recoup past losses, the company says, but to pay for future losses.

There is no doubt, in view of the above statements made by an Aetna representative, that the malpractice situation is serious and that the entire membership of the Minnesota State Medical Association must unite with the Medico-Legal Advisory Committee in its efforts to improve it.

Ramsey's Record is Good

One curious phase of the situation lies in its unevenness. For example: Ramsey County shows an excellent record, no trouble at all; Hennepin County has only a fair record; St. Louis County has a much worse record with large amounts of money lost there; while Stearns County is worst of all.

Everybody Pays

In the last four years the Aetna Company says it has paid out \$10,000 in one small city alone. Result: The rates for all are raised.

What is to be done about the situation?

The Medico-Legal Advisory Committee has been pointing out the answer month by month. Physicians must do everything in their power to avoid malpractice litigation.

If the medical men of Ramsey County can avoid malpractice suits, the men in other counties can do so likewise.

Of course, there is no royal road to such a freedom and sometimes influences are at work that are wholly outside the power of the physician to control.

Avoiding Trouble

Both the doctors who have studied the matter and the insurance men are agreed, however, that the vast majority of suits can be avoided by scrupulous attention to the requirements of good medical practice and good record keeping for the physician in his own practice and an equally scrupulous care for the reputation of fellow practitioners.

The question of whether or not the Aetna Company is to withdraw from any one county and whether or not it will at some future time district the state so that some districts will be charged higher basic rates than others will be taken up in future conferences between the company, the Council and the Medico-Legal Advisory Committee.

Meanwhile the increase in basic rates of premium is now a fact. It goes into effect in all parts of Minnesota immediately.

* * *

In the case of Veronica Krummel vs. Dr. J. L. McLeod of Grand Rapids, Minn., the jury on September 12 returned a verdict for Dr. McLeod after being out but one hour. This is pleasing news to the many friends of Dr. McLeod in our Association.

Soule Again

Propaganda against immunization and vaccination has been pushed with a new vigor this fall.

In Minnesota, the source is the "National Health Foundation, Inc.," an organization whose existence seems to be restricted chiefly to news letterheads. The address given for this foundation is 341 Loeb Arcade, Minneapolis. This is the address of the *National Observer*, of which Mr. H. E. Soule, president of the foundation, is editor. The Soule Medical Company, which manufactures and sells a corn remedy, is also listed with the telephone company at that address.

Using the Newspapers

Pamphlets against diphtheria immunization, vaccination, and tuberculin testing have hitherto been distributed frequently, particularly at health meetings and in communities where a community effort to immunize or vaccinate or test the children for tuberculosis was in contemplation.

Now Mr. Soule is utilizing the Publicity Control Bureau of the Minnesota Editorial Association

to distribute news releases to all editorial association members of the state.

This Publicity Control Bureau is a purely commercial instrument of the editors designed to weed out advertising that masks itself as legitimate publicity material for the editorial columns of the newspaper. It exercises no censorship over the worth or truth of the reading matter; that type of censorship is left to the individual editor.

Bulletin to Doctors

The only notice taken by the Medical Association of the Soule onslaught was a bulletin to doctors issued by Dr. L. R. Critchfield, chairman of the Public Health Education Committee, urging representatives of county medical societies everywhere to discuss the whole matter with their local newspaper editors. The Committee hoped that, by informal discussions between physicians and editors, much might be gained in the way of a good mutual understanding and valuable education in preventive medicine.

The Committee and likewise the State Board of Health were agreed that a public answer to the Soule articles would merely invite further attacks.

As a result of one such conference, a complete editorial retraction of the Soule article appeared in the paper. The retraction, so named in a headline, was printed on the editor's own initiative. The original story had been used inadvertently and without intent of harm.

In many other cases, editors voluntarily called medical society representatives for advice and information before printing the Soule article.

The final result of this departure in publicity methods on the part of the "National Health Foundation, Inc.," is quite likely to be a much better understanding of the facts than ever before on the part of the newspapers.

Investigating the State Institutions

One of the most interesting and valuable pieces of public service ever undertaken by the Minnesota State Medical Association has just been completed by the Committee on State Health Relations, of which Dr. T. H. Sweetser of Minneapolis is chairman.

This was a survey of state institutions made by members of the Committee according to a

schedule drawn up by the Committee itself with advice from the State Board of Control.

The investigations were made independently of any official guidance or routing. The findings represent the observations of impartial medical men, uninfluenced by political considerations of any sort.

The final report was summarized and presented by Doctor Sweetser to the Council and, with the approval of the latter body, submitted to the State Board of Control with the recommendations of the Committee for changes or improvements wherever they seemed advisable.

Findings Complimentary

In general, the findings of these investigators were distinctly complimentary to Minnesota's system of institutions for the blind, the tuberculous, the feeble-minded, the insane, and the institutions of correction.

Most important of the recommendations made were those for better sewage disposal at several institutions and for better arrangements for utilization of the abundant material in all of the institutions for medical research. In a good many instances medical staffs are barely adequate for the routine care of patients and inmates and totally inadequate for research. Suggestions for closer coöperation with the University were made to the end that better use could be made of research material and that fellowships might be established in the state institutions.

Gillette 100 Per Cent

It was noted that only Gillette State Hospital for Crippled Children is approved by the American Medical Association for residencies among the state institutions in Minnesota and suggestions were made for extending this approval to other institutions in order to increase the working staffs of these institutions. Gillette hospital, it was found, is the only one among all of the institutions where a 100 per cent record of autopsies was maintained.

Members of the State Board of Control cordially welcomed the investigation and manifested an especial eagerness for the report.

There is no doubt that this type of survey should be made regularly by representatives of the practicing physicians of the state. In this, they fulfill a definite obligation, not only to their members but to the public. It is a function that should not be delegated solely to official bodies or to lay commissions to perform.

The Council Meets

Dr. A. J. Chesley, State Health Officer, reported to the Council that participation in Social Security appropriations for public health is proceeding satisfactorily with the organization of health districts now virtually complete. There are three at this date with headquarters at Duluth, Bemidji and Mankato.

Participation in maternal and child welfare benefits is proceeding but Washington had not yet determined the ultimate appropriation at the time of the meeting.

There is very little epidemic disease in the state just now and the small amount of poliomyelitis at this time indicates definitely that there will be no epidemic this year.

Dr. Chesley reported that, in decided contrast to the situation two years ago, there is a supply of biologics on hand and money is available for toxoid and vaccine. He offered the co-operation of the State Board of Health in any effort that might be made, with the approval of the Council, to encourage vaccination and immunization in the state.

A description of plans for the Refresher Courses to be financed by Social Security funds was given to Council members by Dr. E. C. Hartley, Director of the Division of Child Hygiene.

The course as now outlined would be divided between obstetrics and pediatrics. It would be given in three series or "circuits" of six lectures each. These circuits are to be held in different parts of the state. Each lecture would begin at four-thirty in the afternoon to be followed by dinner and an hour or an hour and a half of evening instruction. Registration would be free.

The Council voted unanimously to coöperate with Dr. Chesley and the State Board of Health in an effort to extend immunization and vaccination through the Committee on Public Health Education of which Dr. L. R. Critchfield is chairman.

Refresher Courses

The plans for the Refresher Courses were heartily approved, also, and the Committee on Hospitals and Medical Education of which Dr. C. A. McKinlay is chairman, and the Committee on Maternal Welfare of which Dr. R. D. Mussey is chairman, were designated to work with Dr. Hartley and the State Board of Health.

Dr. K. F. Maxcy, recently of the University of Virginia and newly appointed head of the Public Health Training Center for this region at the University of Minnesota, was introduced to the members of the Council by Dr. H. F. Diehl, Dean of Medical Sciences.

This center will take full advantage of the close association between the Department of Health and the Medical School. It will be in the nature of a post-graduate section rather than a separate school, according to Dr. Maxcy.

Malpractice

The current crisis in the malpractice insurance situation which has prompted the boosting of malpractice rates (referred to elsewhere in these columns) was described in detail by Dr. B. J. Branton, chairman of the Medico-Legal Advisory Committee.

The question of possible disciplinary measures for members who instigate malpractice litigation was discussed and Council members directed Dr. Branton to take the matter up with the Committee on Public Policy and Legislation, Dr. L. L. Sogge, chairman.

The Council also directed Dr. Branton, Dr. W. L. Burnap, member of the Committee, and Secretary E. A. Meyerding to investigate the new plan for handling malpractice insurance recently put into effect by the New York State Medical Society.

The Committee on Public Health Education will prepare a series of leaflets on preventive medicine, generally, and particularly on diphtheria protection and smallpox vaccination to be sent out with doctors' bills. These leaflets will constitute part of the general campaign to be carried on by the state association for more and earlier protection against disease.

The Council approved.

Minnesota State Board of Medical Examiners

Minneapolis Naturopath Sentenced to Four Years in Prison

State of Minnesota vs. George R. Viger

On September 15, 1936, "Dr." George R. Viger, fifty-one years of age, entered a plea of guilty in the District Court of Ramsey County, to an information charging him with the crime of abortion. He was sentenced by the Honorable Hugo O. Hanft to a term of not to exceed four years in the State Prison. Viger was arrested on August 7, 1936, at 421 Clifton Avenue, Minneapolis, following the death of a twenty-seven year old St. Paul woman at Ancker Hospital. Val Do Turner, a sixty-nine year old negro physician with offices in St. Paul, was also named in the complaint signed by the husband. Dr. Turner is at liberty on a \$5,000 bond to appear at the next term of the District Court, and is also under citation before the State Board of Medical



Examiners to show cause why his license should not be revoked.

Prior to 1931 Viger maintained an office in the Bremer Arcade in St. Paul. At that time he was representing himself as a naturopathic physician. He was arrested on a charge of practicing healing without a basic science certificate and pled guilty on December 10, 1930. He was sentenced to pay a fine of \$200 and to serve a year in the St. Paul Workhouse. The fine was paid and the Workhouse sentence was suspended on condition that Viger refrain from practicing healing. He closed his office after informing the Court that he was moving to Texas. He did not leave the state, however, and at the time of his last arrest was found to be living at a Minneapolis hotel. A twenty-six year old Minneapolis girl was found in the Clifton Avenue place when the raid was made. She stated that she had been aborted by Viger the day before and had paid him the sum of \$190.00 in cash. The evidence obtained by the Medical Board in cooperation with the Police Department of St. Paul and Minneapolis, indicated that a considerable number of illegal operations had been performed at this place since May, 1936.

The State Board of Medical Examiners is very grateful for the cooperation received from the Police Department of St. Paul and Minneapolis. The evidence obtained in this case made it practically impossible for the defendant to stand trial. The Board also wishes to acknowledge the usual high grade cooperation received from Mr. M. F. Kinkead, County Attorney, and his staff. The sentence imposed by Judge Hanft should discourage quackery and unlawful practices in the field of healing. Counsel for the defendant asked Judge Hanft to limit the sentence to two years, but the Court refused and imposed the penalty provided by law for abortion.

OF GENERAL INTEREST

OF GENERAL INTEREST

Dr. L. E. Sjostrom, a recent graduate of the University of Minnesota, has located in Storden, Minnesota.

* * *

Following the completion of his internship at the Miller Hospital, Saint Paul, Dr. Alden Risser recently began practice at Stewartville, Minnesota.

* * *

Dr. Royal C. Gray and Miss Mary Halverson were married in September. Dr. and Mrs. Gray are now at home at 115 Bedford Street S. E., Minneapolis.

* * *

Dr. Herman J. Kooiker has moved from Milaca, Minnesota, to Hill City, Minnesota, where he will continue the practice of medicine.

* * *

Dr. C. W. More, of Eveleth, who was operated on the latter part of August for a ruptured appendix, has recovered nicely and has resumed his practice.

* * *

There is an opening for a physician in Middle River, Minnesota. Inquiries may be sent to the local drug store or bank.

* * *

Dr. E. W. Arnold of Adrian has recently purchased residence property at Adrian to be converted into a hospital for the community.

* * *

There is an opening for a physician and surgeon at Dunnell, Minnesota. Correspondence should be addressed to the First National Bank, Dunnell, Minn.

* * *

Dr. Carleton Strathern, who received his degree in medicine from the University of Minnesota last spring, has become associated in the practice of medicine with his father, Dr. F. P. Strathern, in St. Peter, Minnesota.

* * *

Dr. Homer Basinger was recently appointed city health officer of Windom, Minnesota, to fill the vacancy caused through the resignation of Dr. A. L. Pertl, who is leaving the community.

* * *

Dr. W. J. Sahr of Hutchinson, Minnesota, is making a name for himself in golf circles, having won the championship of the Hutchinson Golf Club for four years in succession.

* * *

Dr. A. F. Branton of Willmar was elected District Governor of the Minnesota-Dakotas district of the Kiwanis Club at the nineteenth annual meeting held in Rochester, Minnesota, the latter part of August.

* * *

Dr. Arthur Thompson of Cokato is taking a post graduate course in surgery and radiology at Northwestern University, Chicago. He will return to his practice early this month.

* * *

Dr. Wallace P. Ritchie completed his fellowship at the University of Minnesota in July, and in August

became associated with his father, Dr. Harry P. Ritchie, 914 Lowry Medical Arts Building, Saint Paul. His practice will be limited to general surgery.

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Dr. H. H. Holm was awarded the medal of the Southern Minnesota Medical Association for presenting the most interesting case report at the annual meeting held at Albert Lea, in August. His subject was "Siamese Twins."

* * *

Word has been received of the death of Dr. J. De Motte Guthrie, which occurred in Seattle, Washington, September 18, 1936. Dr. Guthrie was a graduate of the University of Minnesota in 1897 and practiced at La Verne, Minnesota, until 1903, when he moved to Seattle.

* * *

Dr. Richard F. Herbst of Minneapolis and Miss Harriet Marie Scoles of Minneapolis were married September 9, 1936. Following a motor trip east and south they will be at home this month at 4728 Minnehaha Avenue, Minneapolis.

* * *

Dr. and Mrs. E. J. Simons have returned to their former home in Swanville after spending the past fourteen months at Ah-Gwah-Ching where Dr. Simons made an intensive study of tuberculosis at the Sanitarium there.

* * *

The marriage of Dr. Herbert L. Stolpestad of Saint Paul and Miss Flora S. Corum of Waltham, Massachusetts, was solemnized in Trinity Church, Boston, August 19, 1936. Dr. and Mrs. Stolpestad are now at home in Saint Paul at 652 Mound Street.

* * *

Correction.—In our last issue the name of one member of the committee of psychiatrists appointed to determine the mental status of prisoners at the State Penitentiary at Stillwater was incorrect. The committee is composed of Dr. Joseph C. Michael, Minneapolis, Dr. E. M. Hammes and Dr. Gordon R. Kamman, Saint Paul.

* * *

Word has been received of the death of Dr. Mary Hopkins Brandrup of Mankato, who died at the age of sixty-six, August 25, 1936. Dr. Brandrup some years ago was woman physician at the St. Peter Hospital for the Insane. She is survived by her husband, Professor J. R. Brandrup of Mankato.

* * *

Dr. J. A. Bargaen and Mrs. Bargaen left September 19 for an extended trip in Europe. Dr. Bargaen will address the Medical Society of Holland, in Amsterdam, October 18, and the Royal Society of Medicine, in London, October 21. He plans to visit clinics in England, Germany, Holland and Italy before returning home.

* * *

The marriage of Dr. James A. Blake, son of Dr. and Mrs. James Blake of Hopkins, Minnesota, and Miss Ruth Sarah Hanford, daughter of Mr. and Mrs. Arthur Hanford of Duluth, will take place October 17 in Du-

OBITUARY

In Memoriam

G. G. Morehouse
1876-1936

DR. G. G. Morehouse of Owatonna died suddenly from heart disease at his apartment September 2, 1936. He was sixty years old and had retired from practice several years ago.

Dr. Morehouse was a son of Dr. E. M. Morehouse, Owatonna's first physician and surgeon, and at one time mayor of the city of Owatonna.

Serving as county coroner for four years and as mayor in 1914, Dr. Morehouse was active in Red Cross work, was chairman of the Steele County Public Safety Committee and a leader in the Owatonna better housing movement. After twenty years of active practice he devoted much of his energy to the beautification of Morehouse Park, a picnic and recreational park in the city, given in memory of his father.

Dr. Morehouse is survived by one sister, Mrs. John Adsit of Owatonna, and a brother, Dr. E. M. Morehouse of Yankton, South Dakota.

Richard Olding Beard
1856-1936

ONE day shortly before he died, Dr. Beard eluded his attendant, got himself dressed, went by street-car to the University, pursued his usual pathway to Millard Hall, followed its corridors so often trod by him and doubtless stopped to glance at old class pictures, nearly every individual in which he knew. He went to the dean's office and talked for a time with Dr. Diehl. Here he was located by anxious friends and induced to go home to bed.

This episode is emblematic of the man and illustrates his two great qualities, loyalty and enthusiasm. The prime object toward which these qualities were directed was the Medical School of the University of Minnesota. He was the last of the old wheel horses of that institution and one of its staunchest supporters.

He was born in England in 1856, came to the United States at the age of thirteen and grew up in Chicago. He graduated in Medicine from Northwestern University in 1882 and came at once to Minneapolis to engage in practice.

But practice soon became a secondary or tertiary interest. From about 1883, when he became connected with the Minnesota Hospital Medical College, to the day of his death, it may be safely said that the overwhelming object of his thought and effort was medical education in Minnesota. During a period of more than fifty years no plan or proposal affecting this activity was ever advanced that did not receive either his enthusiastic support or his cogent criticism.

To such a man it could only happen that the history of every movement in medical education in this state bears traces of his influence. The bringing together of proprietary medical colleges in 1888, under Dean Millard, as the Medical School of the University; the

luth. Dr. Blake is associated in practice with his father in Hopkins, where he and his bride will make their home.

* * *

Dr. O. J. Hagen of Moorhead, Minnesota, president of the Governing Boards of State Universities, represented the Board at the Harvard Tercentenary, Harvard University, September 18. On the way he attended the Cancer Conference at Madison, Wisconsin, and also visited the Memorial Cancer Hospital in New York. Dr. Hagen is a member of the Cancer Committee of the Minnesota State Medical Association.

* * *

The physicians from the Mineral Springs Sanatorium group, which includes Goodhue, Dakota, Rice, Olmsted, Freeborn and Mower Counties, held their annual dinner meeting at the Sanatorium on September 8, 1936.

Dr. Porter P. Vinson, of the Mayo Clinic, spoke on "Importance of Physical Signs in the Differentiation of Inflammatory and Malignant Pulmonary Lesions." Dr. Everett K. Geer, of St. Paul, discussed "Silent Parenchymal Lesions," and showed lantern slides. Dr. E. J. Keplar, of the Mayo Clinic, talked on "Diabetes and Tuberculosis." Dr. T. J. Kinsella, of Glen Lake Sanatorium and Minneapolis, discussed "Empyema" and showed slides.

* * *

The next written examinations and review of case histories of Group B applicants by the American Board of Obstetrics and Gynecology will be held in the various cities in the United States and Canada on Saturday, November 7, 1936, and on Saturday, March 6, 1937.

The next general examination for all candidates (Groups A and B) will be held in Atlantic City, N. J., on June 8 and 9, 1937.

Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania. Applications for these examinations must be filed in the Secretary's office not later than sixty days prior to the scheduled date of examination.

* * *

Members of the Minnesota State Medical Association who wish to read papers before the 84th annual session of the State Medical Association in Saint Paul, May 3, 4 and 5, 1937, are asked by the Committee on Scientific Assembly to send their requests as promptly as possible to Association headquarters, 11 West Summit Avenue, Saint Paul, Minnesota.

The Committee held its first meeting September 19. The members are: *Officers*—A. W. Adson, Rochester; H. W. Goehrs, St. Cloud; Dr. E. A. Meyerding, Saint Paul. *Section on Medicine*—A. H. Beard, chairman, Minneapolis; H. R. Hartman, secretary, Rochester; A. Gullixson, Albert Lea. *Section on Surgery*—M. W. Alberts, chairman, Saint Paul; F. H. Magney, secretary, Duluth; C. O. Estrem, Fergus Falls. *Clinical Demonstrations*—W. A. O'Brien, Minneapolis. *Local Arrangements*—W. R. McCarthy, general chairman, Saint Paul.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

final union with Hamline University Medical Department and the unification of medical education in Minnesota—this under Dean Westbrook in 1908; the campaign for a new medical campus and building of the new medical school and hospital; the admission of nursing to full university recognition; the organization in the University of Minnesota of graduate medical teaching, amalgamation with the Mayo Foundation and affiliation with the Mayo Clinic; the adoption of the full-time plan in clinical departments; the gradual enlargement of the budget and strengthening of the faculty; the numerous improvements in laboratory and clinical teaching; all these were movements in which Dr. Beard had a part and in some of which, for example, the foundation of the first University Nursing School and its later extension into four hospitals, he was the prime factor.

Secondary to education in his interest and activity was public health. He was Assistant Commissioner of Health in Minneapolis from 1886 to 1889. He was a member of the commission which canvassed sources of water supply for the city and finally settled upon the Mississippi river with appropriate chemical treatment and filtration. After his retirement from teaching on reaching the University age limit in 1925, he was active for several years as Executive Secretary of the Health Council of Minneapolis and Hennepin County. He was a member of the American Public Health Association and was active in the field of Public Health Nursing.

He was Professor of Physiology in the Medical School from 1888 to 1925; Head of the Department, 1888-1913; Emeritus Professor, 1925-1936. He was Secretary of the Medical School most of the time from its founding to 1920.

He was a member of numerous medical, public health and hospital societies, and at one time was President of the Minnesota Academy of Medicine. His work in nursing education was recognized by honorary membership in the National League of Nursing Education.

He was a prolific and influential author. He once told the writer that he was raised in a book store. Perhaps through this influence he developed a meticulous classical style of composition. His numerous papers and addresses on medical and nursing education could be searched in vain for solecism or slang.

He was essentially historically minded, a believer in the written word, a builder of records and files, a stickler for minutiae. The volumes of minutes of faculty and committee meetings which he left behind constitute a mine of information as to every phase of thought or action prevailing in the Medical School for almost half a century. He loved to write constitutions and plans of organization. He also spoke forcibly and well.

During the last four years of his life he was engaged in writing a history of the Mayo Clinic and Foundation. If, as this writer suspects, this work is unfinished, we may be certain that this is due to Dr. Beard's unflinching pursuit of detail. Not one date, number or smallest fact would he set down until after the fullest verification. He abhorred sketchy outline and summary. These traits demonstrate intellectual honesty of a high type.

The last of the founders of the Medical School of the University of Minnesota has gone. They were aggressive representatives of a pioneer age. They knew what they wanted and fought for it. If they lacked science, they were not failing in imagination, enthusiasm or hard work. Dr. Beard was worthy of a place in this company.

May the school enlist in its service for all time men of vision, as enthusiastic, loyal and wise as these founders.

E. P. LYON

WOMAN'S AUXILIARY

MRS. E. M. HAMMES, *President*,
1456 Summit Avenue, Saint Paul
MRS. A. A. PASSER, *Editor, Press and Publicity*, Olivia

Interstate Postgraduate Medical Assembly— Women's Entertainment

Sunday, October 11:

4:00 to 7:00 P. M. Informal buffet supper. Honoring officers and chairman Interstate Post Graduate Assembly. Home of Mrs. William H. Von der Weyer, Gray Cloud Island, St. Paul Park.

Monday, October 12:

9:00 A. M. Registration—St. Paul Hotel.
3:00 P. M. Drive and Tea—Complimentary.

Tuesday, October 13:

12:30 P. M. Luncheon and Style Show—St. Paul Athletic Club.
8:00 P. M. Bridge—Medical Arts Library—Complimentary.

Wednesday, October 14:

10:00 A. M. Meeting, followed by Luncheon for Members of Board of Minnesota State Medical Auxiliary. Home of Mrs. E. M. Hammes, 1456 Summit Ave., St. Paul.
12:30 P. M. Luncheon—St. Paul Hotel.
3:00 P. M. Drive and Tea at College of St. Catherine. Cars leave from Hotel St. Paul.
8:00 P. M. Joint Dinner—Lowry Hotel.

Thursday, October 15:

12:30 P. M. Luncheon—Lowell Inn, Stillwater.
12:30 P. M. Luncheon—Women's City Club, St. Paul.
3:00 P. M. Drives and Tea—Complimentary.

Friday, October 16:

A. M. Golf
Tours
1:00 P. M. Luncheon—Somerset Country Club or Town and Country Club.

* * *

Mrs. E. M. Hammes, president of the Woman's Auxiliary, and Mrs. S. S. Hesselgrave, attended the Northern Minnesota Medical Association meeting held at Fergus Falls, August 31. The Auxiliary members were entertained at a luncheon at which Mrs. Hammes and the president-elect, Mrs. J. F. Norman of Crookston, were speakers.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

Inter-state Postgraduate Assembly

The International Medical Assembly of the Inter-State Postgraduate Medical Association of North America will be held October 12 to 16, 1936, at the Auditorium in Saint Paul. Pre-assembly clinics will be held in the Saint Paul hospitals on October 10, the Saturday preceding the Assembly, and post-assembly clinics on October 17, the Saturday following the five-day program.

The scientific program will begin each morning at 8 a. m., each afternoon at 1 p. m. and each evening at 7 p. m. Registration may be made on the Sunday preceding the Assembly at the registration desk in the Saint Paul or the Lowry Hotels, or on Monday at the Auditorium. Registration is necessary and is open to members of county, state, provincial and Dominion societies. Members of the dental profession are cordially invited to attend as well as nurses, internes and medical students. Members are urged to have their ladies register also. The public in general is not invited.

An informal Assembly dinner will be held Wednesday evening to which physicians, their ladies and friends will be welcome.

The scientific program includes a wide variety of subjects and there will be four speakers from the British Isles, one from Canada, and an array of well known medical authorities from other states.

Dr. David Riesman, Philadelphia, is president of the organization and Dr. W. B. Peck, Freeport, Illinois, is the managing director.

Northern Minnesota Medical Association

At the sixteenth annual meeting of the Northern Minnesota Medical Association held at Fergus Falls, Minnesota, August 31 and September 1, the following officers were elected for the coming year: President, O. O. Larsen, Detroit Lakes; vice president, E. A. Heiberg, Fergus Falls; secretary-treasurer, J. F. Norman of Crookston.

At the State Hospital on Monday evening the doctors, their wives, and guests were entertained at a banquet by the Park Region Medical Society and Dr. and Mrs. W. L. Patterson. Dr. Patterson is superintendent in charge of the hospital. Dr. W. L. Strunk, of Decorah, Iowa, chairman of Iowa's Basic Science Board, director of Iowa Conservation Board and Dean of the Biology Department at Luther College in Decorah, was the guest speaker. His address entitled "Our Vanishing Hosts" was a severe indictment of the American people for the gross indifference with which they allow the surface of the earth to be destroyed. Dr. Strunk stated that the destruction of our natural resources is going on at a terrific pace; Iowa alone sends a cubic mile of its top soil to the ocean every year. One very effective point brought out by the speaker was the fact that we have

nothing but deserts today, wherever humanity has lived longest and cultivated the soil. As witness he mentioned the Gobi desert, Mesopotamia, the hill country of China, once the most fertile region of the earth. As an effective remedy he recommended the organization of local clubs or associations somewhat like the American Wild Life Federation, whose aim would be to save the remaining 20 or 25 per cent left of our natural heritage. If our remaining natural resources are to be saved and rebuilt, said Dr. Strunk, the work will have to be done by means of an aroused public opinion acting through these various organizations. Dr. Strunk can be classed as an outstanding conservationist and has a message well worth hearing.

Interesting short addresses were given by the veteran toastmaster, Dr. O. J. Hagen, in his usual witty way, and by the president of the State Medical Association, Dr. W. W. Will of Bertha.

The president, Dr. A. N. Collins, concluded the banquet program with an outstanding address entitled, "The Doctor," making a strong plea for better cooperation between doctors and a higher standard of medical ethics.

Next year's convention city has not been definitely decided upon.

O. O. LARSEN, *Secretary-Treasurer.*

Stearns-Benton Counties

Members of the Stearns-Benton County Society residing in Sauk Center were hosts to the Society at the regular September meeting held in Sauk Center, September 17. Guests outside the membership included physicians from Long Prairie, Osakis, Glenwood and Starbuck.

The meeting opened with a dinner at White Swan Inn on Sauk Lake and was followed by a scientific program which included the following papers:

"Some Neuropsychiatric Considerations in Cases of Trauma—Accidental Injuries"—JOSEPH C. MICHAEL, M.D., Minneapolis.

Discussion—HUGO MELLA, M.D., Director of U. S. Veterans Hospital, St. Cloud, and C. B. LEWIS, M.D., St. Cloud.

"Cardiac Disorders of Particular Interest to the General Practitioner"—OLGA S. HANSEN, M.D., Minneapolis.

Discussion—C. S. DONALDSON, M.D., Foley, and H. P. CLARK, M.D., St. Cloud.

Washington County

The regular monthly meeting of the Washington County Medical Society was held September 8, 1936.

Dr. E. A. Brown of the Mayo Clinic, Rochester, gave a very instructive interesting talk on "Jaundice."

Dr. Francis Michael McCarten of Stillwater, having been favorably reported on by the Society Censors, was elected to membership.

E. SYDNEY BOLEYN, *Secretary.*

MINNESOTA STATE MEDICAL ASSOCIATION*

EIGHTY-THIRD ANNUAL MEETING

May 3, 4, 5 and 6, 1936

Rochester, Minnesota

HOUSE OF DELEGATES

First Meeting

Sunday evening, May 3, 1936

THE first meeting of the House of Delegates of the Eighty-third Annual Session of the Minnesota State Medical Association, held at the Kahler Hotel, Rochester, May 3 to 6, convened at 7:20 p. m., May 3, Dr. W. W. Will, Bertha, president, presiding.

The president announced the appointment of the Committee on Credentials including: Dr. E. G. McKeown, Pipestone, chairman; Dr. C. A. Stewart, Minneapolis, and Dr. B. A. Smith, Crosby.

Minutes of the Council were read by Secretary Meyerding and it was moved by Dr. W. A. Coventry, regularly seconded and carried that this report be received and the articles discussed therein be discussed by the delegates.

REPORT OF THE COUNCIL

The opening session of the Council, held in connection with the Eighty-third Annual Meeting of the Minnesota State Medical Association, Rochester, convened at 9:50 a. m., Sunday, May 3, Dr. H. M. Workman, Tracy, Chairman of the Council, presiding.

The following were present:

President, W. W. Will, Bertha
Secretary, E. A. Meyerding, St. Paul
Treasurer, W. H. Condit, Minneapolis
Past President, W. A. Coventry, Duluth
First District.....H. Z. Giffin, Rochester
Second District.....L. L. Sogge, Windom
Third District.....H. M. Workman, Tracy
Fourth District.....J. S. Holbrook, Mankato
Fifth District.....G. A. Earl, St. Paul
Sixth District.....J. M. Hayes, Minneapolis
Seventh District.....E. I. Simons, Swanville
Eighth District.....W. L. Burnap, Fergus Falls
Ninth District.....B. S. Adams, Hibbing

The minutes of the last meeting were accepted as published.

It was moved by Dr. Coventry, seconded by Dr. Giffin and carried, that the financial report of MINNESOTA MEDICINE be received as presented by Secretary Meyerding.

The financial report of the Fiscal Agency was presented by Dr. Giffin. It was moved by Dr. Earl, seconded and carried, that the Finance Committee has the approval of the Council in selling the LaSalle Realty Corporation bond at its par value and accrued interest. It was further moved by Dr. Earl, seconded and carried, that the Council continue to authorize the Finance Committee with power to act regarding sale and investment from Council meeting to Council meeting.

Dr. H. E. Hilleboe, Director of the Tuberculosis Division of the State Board of Control, appeared before

the Council and outlined the program for expenditures of Social Security Funds for crippled children. Council members asked Dr. Hilleboe to outline the plan before the House of Delegates.

The report of the treasurer was presented by Dr. Condit and accepted.

REPORT OF TREASURER

Minnesota State Medical Association Statement of Cash Receipts and Disbursements for the Year Ended December 31, 1935

CURRENT FUNDS

Cash on Hand, December 31, 1934..... \$ 9,479.78

Cash Receipts, Year 1935:

Dues collected, year 1934.....
and prior\$ 268.75
Dues collected, year 1935..... 29,077.50
Dues collected, year 1936... 3,090.00

Total dues collected..... \$32,436.25
Interest on savings account..... 161.81
Sale of diabetes books..... 147.89
Bruce Publishing Co..... 250.27
Sundry items75
Transferred from Technical Exhibit Fund for credit of Annual Meeting expense. 2,000.00

Total receipts 34,996.97

\$44,476.75

Cash Disbursements, Year 1935:

Special committees:
Diabetes\$ 25.80
Educational fund..... 10,952.57
Historical 1,073.65
Hospital and medical education..... 33.03
Medical Economics..... 1,464.20
Public Works Administration..... 203.28
Public health education..... 3,225.33
Radio 404.63
State Emergency Relief Administration 2,020.00
State health relations..... 28.69
Unbudgeted committees..... 109.97
Minnesota Medicine..... 4,083.40
Furniture and fixtures..... 78.45
Dues refunded 19.75

Administrative expenses:

Annual meeting.....\$ 4,087.27

Conferences:

A.M.A. delegates..... 216.76
President's contingency fund..... 210.44
Other 310.65
Council expenses..... 415.42
County Officers' Meeting..... 449.65
Legal expense..... 1,051.89
Miscellaneous expenses... 283.19
Office supplies and postage 658.52
Printed matter..... 676.17
Rent 384.00
Secretary's salary..... 4,200.00
Secretary's travel expense. 480.44
Stenographic service..... 3,188.31
Telephone and telegraph.. 717.20
Treasurer's salary..... 100.00

\$17,429.91

Total disbursements..... 41,152.66

Cash on Hand, December 31, 1935..... \$ 3,324.09

Report of the Legislative Committee was presented by Dr. Sogge. It was moved by Dr. Earl, seconded and carried, that the Council reaffirm its confidence in Dr. Sogge and his committee, and that it is in full accord with the plans as reported by Dr. Sogge for his committee.

*The Proceedings are printed here in condensed form. They are on file in full at the Secretary's office and may be consulted there.

REPORT OF EIGHTY-THIRD ANNUAL MEETING

On motion of Dr. Hayes, regularly seconded, it was voted that the Council approve the following recommendations for submission to the House of Delegates:

"The following considerations are regarded as fundamental to good care in Minnesota and are recommended by the House of Delegates of the Minnesota State Medical Association in session at Rochester on May 3, for inclusion in the new relief and welfare legislation that is now being drawn up for enactment by the state legislature.

"1. That the proposed County Welfare Plan provide for medical care for the indigent poor; that the patient be allowed free choice of physician and that payment for this care be declared explicitly to be the responsibility of the county in which the patient resides.

"2. That the so-called 'county plan' for care of the indigent is preferable to the township plan and that legislation should be enacted at the next session of the legislature requiring all counties to operate on a county Board of Welfare plan.

"3. That legislation must be enacted to permit state funds to be used to supplement county funds for care of the indigent."

The proposed revision of the Constitution was taken up for consideration, preliminary to meeting with the Reference Committee to discuss the matter.

The meeting recessed at 12:35 o'clock.

* * *

The Council reconvened Sunday afternoon at 2:15.

It was moved by Dr. Giffin, seconded and carried, that the meeting place for 1937 be considered for St. Paul, provided satisfactory arrangements can be made.

Chairman Workman announced that the paid membership showed an increase of 51 over the same period for 1935. Junior membership was discussed and Dr. Sogge stated that the Committee on Affiliate Membership recommended the matter be dropped.

Three resolutions were introduced and each, on motion of Dr. Coventry, was adopted for submission to the House of Delegates for consideration.

The first resolution urged county commissioners and welfare boards to assume the responsibility for medical, dental, surgical or hospital assistance and nursing care for the aged, mentioned in the old age pension law as allowed to pensioners.

The second expressed the appreciation and gratitude of the association to Mr. L. P. Zimmerman, State Relief Administrator, for his work in laying a foundation for an adequate and sound system of medical care for the indigent sick in Minnesota and his understanding shown toward the problem of the doctors.

The third expressed the gratitude of the association to Mr. Victor A. Christgau, WPA State Administrator, and his staff for the manner in which they have recognized the local practicing physician and their willingness to consult with physicians before shaping policies of the administration.

In considering the solicitation and disposition of funds for the Herman M. Johnson Memorial Fund, it was the opinion of members that a sum of \$2,000 should be raised, if possible, to establish a lectureship on medical economics, and that a letter of solicitation be sent out stating the use to which it was proposed to put the fund. It was also agreed that the moneys now in the Memorial Fund be transferred from a checking account to a savings account.

The matter of introducing a law, whereby a coroner could give permission for an autopsy, was referred to the Legislative Committee on motion of Dr. Coventry.

The following were nominated as delegates to the American Medical Association for the years 1937 and 1938:

Delegates	Alternates
W. A. Coventry, Duluth	G. A. Earl, St. Paul
W. F. Braasch, Rochester	W. L. Burnap, Fergus Falls

Amendment to the Constitution, Article IV, Section 4, on affiliate membership as introduced by Dr. Sogge,

was brought to the attention of the Council, to be acted upon at the meeting of the House of Delegates.

A letter from Mrs. Hanson, Chairman of the Health Committee for the Minnesota Federation of Women's Clubs, was read. It was moved by Dr. Coventry, seconded and carried, that the Council authorize Dr. Martin Nordland, as chairman of the Committee on Cancer to coöperate with the Health Committee of the Federation of Women's Clubs.

A letter from E. R. Wright of Bagley, concerning the writing of liquor prescriptions, was read. It was the sentiment of the Council that such prescriptions might be typewritten, provided the doctor's signature was affixed thereto.

Other routine business, including approval of individual applications for affiliate membership, remittance of dues, etc., were handled in the usual manner and the Council then went into joint session with the Reference Committee.

ELECTION OF SPEAKER

It was suggested by President Will, that as a preliminary step looking toward the revision of the Constitution, which provides for a Speaker of the House of Delegates, the House of Delegates immediately elect a Speaker. It was recommended by the Reference Committee that this suggestion be adopted and was so moved by Dr. Hultkrans, seconded and carried.

Dr. O. E. Locken was nominated as Speaker by Dr. M. C. Piper, seconded by Dr. Burnap. On motion of Dr. Sogge, seconded and carried, nominations were closed and the Secretary cast a unanimous ballot for Dr. Locken as Speaker. Dr. Locken assumed the chair.

In accordance with the recommendation of the Reference Committee, the following reports were accepted by the House of Delegates.

REPORT OF THE PRESIDENT

Dr. Will pointed out that 1936 is a crucial year—a critical time for the medical profession. Whatever doctors do now or fail to do now will decide whether American medicine is to follow some other lines of human endeavor into grooves set by socialism and mass production.

The hope of medicine, he pointed out, lies in organization and organized activity. It lies in laying hold of this immediate problem of medical care of the poor and handling it wisely and well in accordance with one united policy. It lies in keeping legislators informed on medical facts and being fair and reasonable in all dealings with official agencies.

In all his relations with his fellow man, he declared, the doctor must be a little more than human. If he is not a little more trustworthy, a little more conscientious, a little more gentle and kind, then he has no place as a doctor.

REPORT OF THE SECRETARY

The Secretary reported that 1936 has seen an unexampled extension of the work of the Association and touched on the following highlights:

Medical Relief.—The return to the individual counties of responsibility for all direct relief came abruptly with the withdrawal of federal funds and the beginning of work relief. Medical care was among the responsibilities put up squarely to the commissioners of each county. This contingency had been foreseen by officers and Councilors, and the Committees of Three were organized with the objective of having ready a

REPORT OF EIGHTY-THIRD ANNUAL MEETING

close contact to make satisfactory readjustments when the SERA should end. Many of the counties were so ready.

For those counties which had not been so successful, assistance was needed. To provide this assistance and also to aid the Secretary and enable the State Office to maintain a close contact with the multiple government agencies, Mr. R. R. Rosell of Minneapolis was engaged with the approval of the Council.

As a result of Mr. Rosell's work, several adjustments have been made, including among them: medical care in transient camps given to local physicians on a fee basis; official endorsement by SERA of the medically approved plan of free choice of physician for indigent and payment to physicians on a fee basis. Mr. Rosell has visited thirty-nine counties to discuss plans for medical care of the indigent. It should be noted that special and unusual methods for treating the indigent in any part of the state, while they may appear to benefit the specific community served, are likely to cause confusion and lead to unnecessary difficulties.

Social Security.—The practice of medicine in Minnesota will be affected at many points by the Social Security program. The Minnesota Old Age Pension Law provides specifically for medical care in addition to pensions. This care must be provided by local county boards. Physicians should be familiar with this law and negotiate with county officers accordingly.

Two Titles of the Social Security Act, five and six, deal with Public Health, Maternity, Child Welfare and Crippled Children's programs. In all of these the practicing physician has a great interest. The Council of our association will act as advisory committee to Dr. A. J. Chesley in the administration of the program under Title Six. Dr. R. D. Mussey represents the association on the Advisory Committee for the Maternal and Child Welfare Program. Dr. Coventry is also a member of the committee.

Immunization and other preventive and diagnostic procedures will, no doubt, assume a place of prominence in this program. It is especially important that physicians be prepared to assist. Experience has shown there is need for more uniformity in the reading of diagnostic tests. Extensive demonstrations have been arranged on this subject for this meeting.

The importance of close coöperation on the part of each individual county medical society with local bodies in the operation of this Social Security health program cannot be stressed too strongly.

High School Debates.—Results of our efforts to assist high school debaters on state medicine have not been satisfactory. We do not know whether this has been due to lack of effective material from the state office or to lack of interest on the part of the local profession. In a number of localities the fine work of individual physicians and medical societies were successful, especially in Rochester, Willmar and Stillwater. Under the supervision of the Committee on Medical Economics several publications were distributed by the State Office to both debaters and physicians. One of them was a "Handbook" on the subject of the high school debate question and was distributed to all debate coaches and others interested in Minnesota. This Handbook had a circulation that went all over the United States. Accompanying this Handbook was a brief for the use of high school debaters. We also distributed a sample talk on the subject, with an outline for the use of physicians for school and lay groups of all kinds.

Interprofessional Relationship.—The interests of all professions having to do with health are essentially identical and working together is a necessity. Representatives of these various professions have met together under the Committee's auspices and discussed

joint problems. This contact should be strengthened and continued.

Medical Economics.—The state office has continued to work with Dr. Braasch's Committee, this year, by assistance in preparation of copy for the Medical Economics section of MINNESOTA MEDICINE and assistance in collection of information for the Committee.

Comments on this work from medical officials and editors outside of Minnesota has been most favorable.

College Lecture Course.—Four or five lectures, making up a course on medical subjects for colleges are now an established part of our annual program. These lectures bring authentic information to college students and future teachers of the state and also promote invaluable good will.

News Service.—The weekly News Service issued by the Committee on Public Health Education, designed for use in weekly newspapers is prepared in the state office, approved by the Editorial subcommittee and distributed through the Minnesota Editorial Association. Nearly all of the 500 papers of the state use the service, regularly or at intervals.

County Officers' Meeting.—As far as possible, representatives of all the agencies, commissions and bureaus, whose functions involve physicians and medical care were invited to be present at the annual County Officers' Meeting.

Council.—The Council has met six times in the past year including meetings held in connection with the Annual Meeting last year. The problem of reorganization of medical relief is probably the most important that has faced the profession this year and the Council has taken definite action to provide a basis for negotiations with county officials. The following resolution was passed: "The free choice of physician by the patient should be established and maintained in every plan for care of the sick poor, no matter what other accompanying arrangements may be made. The free choice of physician by the patient is regarded by the Council of the Minnesota State Medical Association as the fundamental principle which should underlie and guide all forms of medical practice in the United States."

The Council went on record as approving the Red Cross plan for First Aid Stations on the highways, provided that county medical societies control all medical phases and the chairman of each local advisory committee is a physician.

A Medico-Legal Advisory Committee was appointed for the purpose of advising with members who are threatened with malpractice litigation and also for the purpose of keeping the membership informed on the malpractice situation in general.

Members of the Council as an advisory committee to Dr. Chesley on the administration of Social Security funds, will keep in close touch with all developments and advise and assist the membership in assuming responsible leadership in each locality.

The Johnson Memorial Fund which has already reached more than \$600 in cash and considerably more in pledges and which will be used for a lectureship on the social and economic aspects of medicine at the University of Minnesota, and the granting of a charter to the Dakota County Medical Society, were also reported on.

* * *

In addition to his report, Secretary Meyerding stated that the registration of doctors had already reached 407. It was moved by Dr. K. A. Danielson, seconded and carried, that the report of the Secretary, including the report of the Chairman of the Council, be approved and that all the acts, contacts and appointments made by the Council, the Secretary and the Treasurer for the past year be adopted.

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REPORT OF EIGHTY-THIRD ANNUAL MEETING

Comparison of Paid Membership Minnesota State Medical Association, April 28, 1935, and April 28, 1936

Medical Society	Membership Dec. 31, 1935	Paid Apr. 28, 1935	Paid Apr. 28, 1936
	Total		
Blue Earth County.....	33	30	29
Blue Earth Valley.....	30	30	32
Camp Release District.....	22	21	19
Clay-Becker County.....	20	20	19
Dakota County.....	7	..	2
East Central Minnesota.....	38	36	34
Freeborn County.....	20	19	23
Goodhue County.....	19	19	20
Hennepin County.....	537	497	516
Kandivohi-Swift-Meeker.....	31	30	31
Lyon-Lincoln County.....	21	21	18
Mower County.....	23	23	24
McLeod County.....	16	16	17
Nicollet-Le Sueur County.....	17	17	15
Olmsted-Houston-Fillmore Dou- County.....	308	285	286
Park Region District and County.....	52	46	52
Ramsey County.....	303	302	306
Red River Valley.....	55	49	50
Redwood-Brown County.....	25	24	25
Renville County.....	20	20	20
Rice County.....	35	35	38
St. Louis County.....	176	154	171
Scott-Carver County.....	27	27	26
Southwestern Minnesota.....	53	51	55
Stearns-Benton County.....	36	36	32
Steele County.....	18	18	17
Upper Mississippi.....	84	78	81
Wabasha County.....	9	9	9
Waseca County.....	10	9	9
Washington County.....	16	16	15
Watonswan County.....	8	8	7
West Central Minnesota.....	24	24	24
Winona County.....	24	24	25
Wright County.....	21	21	19
	2,138	2,015	2,066

Dr. H. E. Hilleboe, Director of the Tuberculosis Division of the State Board of Control, appeared before the House of Delegates and outlined the program for expenditures of Social Security Funds for crippled children.

COMMITTEE ON PUBLIC HEALTH EDUCATION

Dr. L. R. Critchfield, chairman, presented the report of the Committee on Public Health Education, pointing out that the problem of the committee has become twofold: the extension of public knowledge of medical procedures and public confidence in the medical profession; urging upon the profession the necessity for keeping abreast of all the new immunization and diagnostic procedures. With the passage of the Social Security Act, a new focus is placed on the question of immunization and the physicians must be ready to cooperate in every way.

Several educational services are maintained continuously by this Committee to assist the physician in the work of educating the public about matters of health and prevention of disease, also to assist the public in distinguishing quackery from authoritative medicine. These include the College Lecture Course, weekly newspaper service reaching nearly 500 state papers, health talks numbering 688 during 1935-36, Speakers' Bureau to give these talks, Speakers' Library, *Everybody's Health* magazine, carrying authentic information on health and disease prevention and preaching the "family doctor" as a fundamental principle of good health protection, 4-H Club Health Examination to choose a state health champion, distribution of health diaries, first aid manuals and "Handbooks of Health."

The Committee also cooperates in every way possible with the Women's Auxiliary.

The Reference Committee suggested that the delegates make a special point of presenting the contents of this report before their local societies.

COMMITTEE ON STATE HEALTH RELATIONS

In submitting the report on the Committee on State Health Relations, Dr. T. H. Sweetser, chairman, stated the committee occupied itself principally with two problems during the year:

1. *Care of the indigent.* The experience of the SERA has demonstrated that medical care of the individual can be carried on by all the doctors of each community on a fee basis with preservation of choice of physician for the patient. The Committee worked to further this system. Appreciation was expressed for the work done by the Secretary and his staff, Mr. Rosell and the Council Committee under Dr. Giffin. Dr. Locken's talk before the Convention of County Commissioners was commended.

2. *Survey of medical care in State Institutions under the State Board of Control.* The Committee has practically completed its visits and individual reports.

The report was discussed at some length. It was moved by Dr. C. L. Farabaugh, seconded and carried, that the House of Delegates commend the action of Dr. Paul C. Leck of Austin, in resigning as county physician, and that it offer its support to the effort to eliminate the old fashioned county doctor in relation to all county practice.

Dr. B. S. Adams moved and it was seconded and carried that a copy of the address made before the County Commissioners by Dr. O. E. Locken be sent by the Secretary to every member of the Association.

REPORT OF COUNCILORS

That affairs were progressing satisfactorily in their districts were reported by the following Councilors:

H. Z. Giffin.....	First District
L. L. Sogge.....	Second District
H. M. Workman.....	Third District
J. S. Holbrook.....	Fourth District
G. A. Earl.....	Fifth District
J. M. Hayes.....	Sixth District
E. J. Simons.....	Seventh District
W. L. Burnap.....	Eighth District
B. S. Adams.....	Ninth District

EDITING AND PUBLISHING COMMITTEE

Presenting the report of the Editing and Publishing Committee, Dr. J. T. Christison, chairman, stated: "In spite of the economic situation and the fact that MINNESOTA MEDICINE has increased materially in size, you will note that we are not in the 'red.'" A profit of \$615.22, the largest for some years, was shown for 1935.

RADIO COMMITTEE

Dr. R. M. Burns, chairman of the Radio Committee, reported forty-seven radio talks given over WCCO from May 1, 1935, to May 1, 1936, all by Dr. William A. O'Brien, Associate Professor of Pathology and Preventive Medicine, University of Minnesota. The service started in 1928, and to date 400 radio talks have been sponsored by the Association, with Dr. O'Brien, whose popularity is more firmly established each year, as weekly speaker.

The broadcast has been changed from Wednesday to Tuesday and the station finds it difficult to assure a regular time because of commercial programs. The Minnesota State Dental Association sponsored eight of these talks and was well pleased with the response. There has been an unusual demand for the speaker for personal appearances. From January 1, 1931, to

REPORT OF EIGHTY-THIRD ANNUAL MEETING

December, 1935, Dr. O'Brien gave 723 talks and had to decline many others. The program is still rated as one of the most popular and best known of all features from the station, and mail continues very heavy.

* * *

The Reference Committee moved that the Radio Committee be commended for its splendid work, and recommended that letters of appreciation be sent to Dr. O'Brien for his untiring efforts in these programs. The Reference Committee also recommended that a letter of appreciation be sent to Station WCCO for its generosity in making these broadcasts possible. The motion was seconded and carried.

COMMITTEE ON HOSPITALS AND MEDICAL EDUCATION

Dr. C. A. McKinlay, chairman, presented the report of the Committee on Hospitals and Medical Education. With regard to postgraduate instruction for physicians, medical short course lectures were held in Blue Earth, Hutchinson, Glencoe, Willmar and Olivia during the past year through the coöperation of the General Extension Division of the University of which Dr. R. R. Price is director.

At the University, the Minnesota Medical Alumni Association, coöperating with this Committee, sponsored homecoming lectures and clinics. Courses in refraction for four weeks were held in April and November. Courses were also offered one night weekly on practical preventive medicine, tuberculosis and other diseases of the chest, tuberculosis and its control. All were appreciated.

Future plans include the encouragement of wider use of postgraduate medical instruction. The coöperation of the medical school is offered through Dean H. S. Diehl.

COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Report of the Committee on Public Policy and Legislation was presented by Dr. L. L. Sogge. A representative of the Committee was in constant attendance at the special session of the legislature and any objectionable bills were opposed. None was enacted into law. Dr. C. I. Oliver and Dr. J. L. McLeod are members of the Senate. Through their efforts, a provision was put in the Old Age Pension Act providing for medical, surgical, dental, hospital and nursing care in addition to the pension paid.

The Committee has also been assured that it will have an opportunity to be heard when rules are formulated for a new set-up in connection with the administering of state relief.

* * *

It was moved by Dr. F. H. Magney, seconded and carried, that the House of Delegates write Drs. Oliver and McLeod expressing its appreciation for the services they have rendered the Association.

COMMITTEE ON PUBLIC HEALTH NURSING

Dr. E. S. Boleyn, chairman of the Committee on Public Health Nursing, presented the following report: "The principal matter which has come up is the new Policies and Standing Orders for Public Health Nursing Services. The present Orders were considered insufficient and out of date and the Committee felt that certain items should be referred to specialists. This was done, and the revised Orders referred to the Council. The Council accepted same, barring one

item, the treatment of burns. For this, tannic acid was recommended as the only treatment."

* * *

The Reference Committee moved that this report be accepted with the suggestion that the last sentence be changed to read: "The Council accepted the same, barring one item, the first-aid treatment of burns," instead of the treatment of burns. The Chairman of the Committee agreed to this change and the report was adopted.

COMMITTEE ON INDUSTRIAL RELATIONS

Dr. J. M. Hayes, chairman of the Committee on Industrial Relations, reported that, though the state committee has had no meeting, the Hennepin County Medical Society was trying to institute a plan which it hoped would be adopted by the State Association. Some of the adjusters of companies carrying the greatest amount of compensation insurance suggested that the County Society present a panel of doctors to them to replace the limited panel which they had formerly chosen themselves.

* * *

The matter was discussed and the Reference Committee moved that no action be taken on the report at that time other than to disseminate the proposal and facts involved to the profession, with the means of dissemination left to the discretion of the Council.

COMMITTEE ON MILITARY AFFAIRS

Lt. Col. F. L. Smith, chairman of the Committee on Military Affairs, reported that with the curtailment of CCC Camps from 104 to 69, there was a reduction in the employment of medical reserve officers.

Reserve officers and civilian members of the profession are urged by the Committee to seek support of legislators and regents in bringing about compulsory R. O. T. C. training.

The Seventh Annual Medical Reserve Officers Inactive Duty Training Unit was held under the auspices of the Mayo Foundation at Rochester this year, with the largest attendance in its history. The committee sponsored an exhibit at the annual meeting.

COMMITTEE ON CANCER

Dr. Martin Nordland, chairman of the Committee on Cancer, reported that for two years it has been the aim of the Committee to arouse interest of the profession in cancer. This subject has received its share of attention at each state meeting and county societies have been urged to devote one meeting a year to cancer.

Members of the Committee met February 5, with Dr. F. L. Rector, field representative of the American Society for the Control of Cancer, and Mrs. Illig, chairman of the Public Health Committee of the Minnesota Federation of Women's Clubs. Dr. Rector and Mrs. Illig outlined a program for presenting the subject to the laity through the medium of federated clubs. The committee agreed to coöperate in the effort.

COMMITTEE ON INTERPROFESSIONAL RELATIONSHIP

Dr. F. J. Savage, chairman, submitted the report of the Committee on Interprofessional Relationship. Following conferences with pharmacists, they recommended the following:

- "1. That conferences and coöperation between the pharmacists and the Medical Association be continued.
- "2. That County Medical Societies give the pharmacists opportunity for conference and discussion.
- "3. That MINNESOTA MEDICINE give them reasonable space

REPORT OF EIGHTY-THIRD ANNUAL MEETING

for presenting certain of their problems, and that this recommendation be brought to the attention of the Editing and Publishing Committee and to the Pharmacists' Association by our secretary.

"4. That our secretary call the attention of the Dean of Medical Sciences to our opinion that the teaching of therapeutics and prescription writing is inadequate, and urge him that it be made adequate and worthy of the reputation and standing of our medical school.

"5. That the Council of the State Medical Association consider the advisability of recommending legislative action making the dispensing of barbiturates permissible only on prescription."

The Committee also met with nurses and representatives of the Minnesota Hospital Association. Nursing education standards were discussed and it was agreed that extensive training is necessary for those nurses who intend to teach or go into administrative work, but that a Ph.D. degree is not needed for ordinary bedside nursing and that if requirements for such nursing are steadily raised, the cost will become too high for the patient to pay. It was pointed out that there has been a definite shortage of nurses in some places during the past winter.

Dr. C. B. Wright presented six criticisms which, he said, are often brought up and should be discussed. They were: arbitrary ruling on hours and cost of nursing are made without notifying hospitals or doctors; arbitrary rulings are made as to the number of nurses that can be educated in a given hospital and the number of patients that each hospital shall have to care for in order to retain a nurses' training school; arbitrary rulings are made on the physical equipment and sanitary standards in a hospital where nurses are to be approved for registration; attempts are being made to raise the standard for education above the need for bedside nursing which would mean a scarcity of nurses and hardships for the public; attempts to pass laws which would put the control of nursing education in the hands of lay people; suggestions that a thorough study be made of the law under which the Board of Nursing Examiners is operating to determine its limitations and to bring about such modifications as will make the law cover present-day requirements.

These are to be discussed at a coming meeting. The Committee believes that similar future meetings are well worth while.

* * *

The Reference Committee commended this important and instructive report and moved the adoption of the recommendations contained therein, the method of carrying out these recommendations to be left to the Council. The motion was seconded and carried.

COMMITTEE ON DIABETES

The report of the Committee on Diabetes, presented by Dr. R. M. Wilder, chairman, quoted figures from the "Statistical Bulletin of the Metropolitan Life Insurance Company," showing that since the beginning of the century, diabetes has risen from a comparatively minor cause of death in the United States to ninth place, while tuberculosis has fallen from first to seventh. The death rate from diabetes among white females, in fourteen states during 1933 and 1934, exceeded that from tuberculosis.

"The implication of these figures and others quoted is obvious," the report states. Diabetes and other chronic diseases are certain to demand more and more attention from public health officials, as the average age of our population increases and the incidence of acute diseases and of tuberculosis decreases. The organizations which have been built up to combat tuberculosis may well extend their work to the study and control of other chronic diseases. This idea has already taken hold in several parts of the country and should be encouraged everywhere.

COMMITTEE ON DEAFNESS PREVENTION AND AMELIORATION

The report of the Committee on Deafness Prevention and Amelioration submitted by Dr. Horace Newhart, chairman, brought out that the committee has made progress during the past year. A notable growth in interest in group testing of the hearing acuity of children has been shown. Under the direction of the committee testing in rural schools was inaugurated in Blue Earth, Goodhue, and Washington counties. Demonstration surveys and public health meetings, emphasizing the conservation of hearing were conducted in several communities. There is a noticeable awakening of public interest in the movement for better hearing. The Committee acknowledges the coöperation of the Minnesota Public Health Association, the State Department of Education and the State School for the Deaf.

COMMITTEE ON MEDICAL ECONOMICS

Dr. W. F. Braasch, chairman of the Committee on Medical Economics, said that, during the past year, the committee has continued to collaborate with the State Office in preparing material for the Medical Economics Section in MINNESOTA MEDICINE, where an effort is made to arouse interest in economic subjects and to keep members informed on social and economic problems of the day.

At a committee meeting recently held, several problems of interest were discussed including the following:

Statistics were quoted showing that in a few hospitals in the Twin Cities, during the year 1934, almost 500,000 treatments were given without cost. Many of the patients, undoubtedly, were not indigents. A survey on this subject was made by the Chicago Medical Society showing that approximately 13 per cent of patients treated received free medical care although they could afford to pay for it. In some instances this ran as high as 25 per cent; in others as low as 5 or 6 per cent.

Various problems concerning the Student Health Service at the University of Minnesota were discussed at length and much credit was given the administrative ability of Dr. Diehl. However, the Committee believes that closer coöperation between the Health Service and home doctor should be established so that the Health Service could be informed on previous examinations by home doctors and clinical data on the student could be transmitted to the home doctor when the student returns home.

It was also suggested that cost of services, such as roentgenograms and laboratory examinations, be omitted from Health Service blanks.

It was further suggested that more than one physician should be required to sign admission blanks to the University hospital thereby eliminating personal reasons other than pecuniary for sending patients to the University Hospital.

Other matters such as the provisions of the Social Security Act relating to maternal and child welfare, the determination of fees for accident and industrial cases by lay boards, and the Red Cross first-aid program were discussed, but on these matters steps had already been taken on behalf of the medical profession.

Attention was called to the establishment of a camp for the treatment of venereal diseases in Northern Minnesota, under the supervision of a physician in the employ of the government. The need of such an institution for transient workers was questioned and the matter referred to members living in that locality.

REPORT OF EIGHTY-THIRD ANNUAL MEETING

MEDICO-LEGAL ADVISORY COMMITTEE

Dr. B. J. Branton, chairman, presented the report of the Medico-Legal Advisory Committee, which was appointed by the Council following a motion calling for such a committee at the House of Delegates meeting last year. The new committee has carried on an educational campaign by talks, magazine articles and personal contacts. It has held frequent meetings with representatives of insurance carriers, looking toward the lessening of malpractice cases and reduction in premiums.

COMMITTEE TO STUDY CONTRACT PRACTICE

The Committee to Study Contract Practice, the report of which was given by Dr. O. W. Yoerg, chairman, offered two suggestions:

1. That the State Association endorse and accept the Standards relating to Contract Practice as simplified and revised by the Judicial Council of the American Medical Association in 1934, since the Committee feels that this is concise yet broad enough to cover sound principles.

2. That each County Society accept and use as a standard the Declaration. It is further suggested that the members of the Association be furnished a copy with the endorsement of the Council.

* * *

The Reference Committee recommended the adoption of the two suggestions and further suggests an interpretation of No. 5 in the Standards, which reads "When free choice of physician is prevented," about which there seems to be some misunderstanding. This was regularly seconded and carried.

COMMITTEE ON MATERNAL WELFARE

The program adopted by the Committee on Maternal Welfare, according to the report of Dr. R. D. Mussey, chairman, is being developed along three lines.

1. To coöperate with various state and private agencies.

2. To assist in education of the laity relative to the value of prenatal care.

3. To recommend the presentation of papers on obstetrical subjects before various medical meetings in the state. A Minnesota Society of Obstetrics and Gynecology is being organized.

The State Medical Association has four representatives on the State Advisory Committee on Maternal and Child Welfare who will join with this committee and the State Board of Health in carrying out the program under the Social Security Act.

Other committees which presented no special reports for the year since there had been no outstanding activity, include:

Committee on University Relations
Committee on Medico-Legal Affairs
Heart Committee
Editorial Association Committee

RESOLUTIONS

Secretary Meyerding presented a number of resolutions. The first one recommended that the State Board of Health be continued as an independent department of state government and commended the department

for its fine program and close coöperation with the medical profession in Minnesota.

A second resolution expressed the appreciation of the association to Mr. L. P. Zimmerman, State Relief Administrator, for his work for the medical care of the indigent and the efforts of his staff to guide county organizations toward the continuance of SERA policies in medical care for the indigent.

A resolution also expressed the association's gratitude for Mr. Victor A. Christgau's fine work and the manner in which he and his associates have recognized the local practicing physician.

A fourth resolution urged county commissioners and welfare boards to assume the responsibility of medical care for the aged who are receiving old age pensions, and make special provision to care for needy old people.

Secretary Meyerding also read three considerations regarded as fundamental to good medical care in Minnesota and recommended for inclusion in the new relief and welfare legislation now being drawn up for enactment by the state legislature. (These considerations are printed in full in the Council report above.)

The Reference Committee reported it had considered these resolutions separately, but if not out of order, would move that all be adopted by one ballot. Dr. B. S. Adams asked that there be included in that motion that a copy be sent to the respective recipients. This was agreed to and the motion was seconded and carried.

Secretary Meyerding read a resolution submitted by the Interprofessional Relationship Committee and approved by the Executive Committee of the Hennepin County Medical Society and later referred to the State Association. This resolution, which was presented by Dr. Hayes was as follows:

"The Interprofessional Relationship Committee believes that it is advisable for the various professions, viz., physicians, dentists, nurses and pharmacists, to get behind a movement which will lead to the enactment of proper legislation at the next session of the legislature to sponsor a law making it illegal to sell or give away barbituric acid and its derivatives without a doctor's prescription."

* * *

The Reference Committee approved the resolution and moved its adoption, seconded and carried.

REVISED CONSTITUTION

The Reference Committee, in its report on the Revised Constitution, called attention to the reason for the major changes made in the old constitution. First, the wording in the present Constitution is ambiguous and misleading in many instances. It also gives the impression that this organization is designed for the protection and profit of its members. The wording in the revised version tends to emphasize the scientific advancement of the organization.

Second, changes have been made to clarify the method of election, the duties and responsibilities of the officers and eligibility for office.

A new feature has been added, the office of Speaker

REPORT OF EIGHTY-THIRD ANNUAL MEETING

of the House of Delegates, to be elected yearly by the House. This change conforms to the newer constitutions now being adopted elsewhere and is modeled after the American Medical Association. It will facilitate the business of the House.

The By-Laws were not presented for consideration as the Committee felt they had not had sufficient time to complete the clarification of this section and requested that this be laid over until the next annual meeting.

* * *

The Reference Committee recommended that the Constitution be revised as presented and that it be published in MINNESOTA MEDICINE as prescribed in the present Constitution. It further recommended that a careful study be given the revisions by members of the Association and that any suggestions, criticisms or amendments be sent to the State Office so that they may be considered by the committee, and that with these revisions it be presented at the next annual meeting for adoption.

The Reference Committee further recommended that the suggestion of the Constitution Committee regarding the By-Laws be accepted and that these be studied further and presented with the Constitution for adoption next year.

Feeling that the Committee on Constitution had done a constructive piece of work, the Reference Committee recommended that its activities be continued.

The recommendations were seconded and carried.

AMENDMENT

The following amendment to Article IV, Section 4, of the Constitution was brought before the Delegates for the second time and adopted:

"Affiliate members shall be those members of the component medical societies who (1) through disability are unable to engage in the practice of medicine, (2) have retired from the practice of medicine, providing however, that such member in either class shall have first, at his own request, been declared an affiliate member of such component society at its regular meeting, such action having been approved by the Council and providing further that such affiliate membership shall automatically cease and revert to its previous status on the termination of disability or on the resumption of practice. Nothing in this section shall in any manner invalidate an affiliate membership in good standing at the time of the adoption of this amendment."

A resolution adopted by the Executive Committee of the Hennepin County Medical Society was presented by Dr. C. A. Stewart. The committee voted to recommend some method whereby the responsibility of application of admission of a patient to the University Hospital and Dispensary is not left exclusively to the local physician and that this resolution be referred to the Council of the state association and the University Relations Committee of the association to formulate plans, possibly along the line used in Iowa, where three or more persons sign the patient's application. It was also recommended that the University Relations Committee be authorized to act when satisfactory plans have been devised. This was referred to the Council.

The House of Delegates then adjourned until Tuesday, May 5.

HOUSE OF DELEGATES

Second Meeting

Tuesday, May 5, 1936

The second meeting of the House of Delegates convened at 12 o'clock, Tuesday, May 5.

The following officers were nominated and elected:

President.....A. W. Adson, Rochester
First Vice President.....H. W. Goehrs, St. Cloud
Second Vice President.....D. P. Head, Minneapolis
Secretary.....E. A. Meyerding, St. Paul
Treasurer.....W. H. Condit, Minneapolis
Councilors:
Fourth District.....J. S. Holbrook, Mankato
Sixth District.....J. M. Hayes, Minneapolis
Eighth District.....W. L. Burnap, Fergus Falls

Secretary Meyerding read the report of the Historical Committee and the Necrology Report, which were adopted.

NECROLOGY REPORT

In Memoriam

MEMBERS OF THE MINNESOTA STATE MEDICAL ASSOCIATION

June 20, 1935 - May 3, 1936

Rollin Theodore Adams, Mantorville. Born 1864. University of Minnesota, 1893. Died Dec. 6, 1935. Aged 71.

Allen Tindolph Agnew, International Falls. Born 1891. University of Minnesota, 1917. Died Sept. 28, 1935. Aged 44.

Clifford E. Alexander, Duluth. Born 1901. University of Minnesota, 1925. Died Feb. 9, 1936. Aged 34.

Frank M. Archibald, Mahanomen. Born 1865. University of Illinois, 1893. Died March 1, 1936. Aged 70.

George Elgie Brown, Rochester. Born 1885. University of Michigan, 1909. Died Nov. 28, 1935. Aged 50.

Frank Wright Bullen, Hibbing. Born 1869. Rush Medical College, 1896. Died July 21, 1935. Aged 66.

George Radcliffe Duncan, Oak Terrace. Born 1903. University of Minnesota, 1929. Died April 6, 1936. Aged 33.

Frank Llewellyn Durgin, Winnebago. Born 1851. Western Reserve University, 1882. Died Sept. 23, 1935. Aged 83.

Chester E. Gates, Anoka. Born 1879. University of Minnesota, 1904. Died June 24, 1935. Aged 56.

Verner Paul Johnson, Delano. Born 1902. University of Minnesota, 1926. Died March 18, 1936. Aged 34.

Edward Starr Judd, Rochester. Born 1878. University of Minnesota, 1902. Died November 29, 1935. Aged 57.

William Nassau Kendrick, Spring Valley. Born 1872. McGill University, 1896. Died Jan. 21, 1936. Aged 63.

William W. Lewis, St. Paul. Born 1873. University of Minnesota, 1902. Died July 29, 1935. Aged 62.

Clarence Edward Lum, Nisswa. Born 1862. Minnesota Hospital College, 1885. Died Sept. 7, 1935. Aged 73.

Charles Naumann McCloud, St. Paul. Born 1872. University of Minnesota, 1901. Died August 13, 1935. Aged 63.

Roderick Frederick McHugh, Aitken. Born 1889. Milwaukee Medical College, 1912. Died July 31, 1935. Aged 46.

Charles Gustaf Nordin, St. Paul. Born 1885. University of Minnesota, 1910. Died Oct. 9, 1935. Aged 50.

Justus Ohage, St. Paul. Born 1849. University of Missouri, 1880. Died Dec. 26, 1935. Aged 86.

John M. Rains, Willmar. Born 1850. Victoria University, 1870. Died Nov. 10, 1935. Aged 85.

Emory Chester Rebman, Austin. Born 1885. Northwestern University, 1909. Died Jan. 7, 1936. Aged 50.

BOOK REVIEWS

Walter Jay Richardson, Fairmont. Born 1856. College of Physicians & Surgeons, N. Y., 1885. Died Feb. 20, 1936. Aged 79.

David Edward Seashore, Duluth. Born 1875. University of Minnesota, 1902. Died Nov. 4, 1935. Aged 60.

Edwin H. Smith, Bemidji. Born 1876. University of Minnesota, 1900. Died July 7, 1935. Aged 59.

Patrick Albert Smith, Faribault. Born 1866. Jefferson Medical College, 1893. Died Nov. 27, 1935. Aged 69.

Lawrence F. V. Sutton, Mazeppa. Born 1878. College of Physicians & Surgeons, Baltimore, 1906. Died Dec. 4, 1935. Aged 56.

Frederick W. Van Valkenburg, Long Prairie. Born 1898. University of Minnesota, 1925. Died Feb. 8, 1936. Aged 38.

Neill Malcolm Watson, Red Lake Falls. Born 1865. McGill University, 1891. Died March, 1936. Aged 71.

FORMER MEMBERS

Arthur T. Caine, Anoka. Born 1875. University of Minnesota, 1900. Died Sept. 12, 1935. Aged 60.

George Everett Clark, Stillwater. Born 1852. Hahnemann Medical College, Chicago, 1880. Died August 26, 1935. Aged 83.

John B. Dunn, St. Cloud. Born 1859. Rush Medical College, 1882. Died Feb. 7, 1936. Aged 76.

William Sommerville Fullerton, St. Paul. Born 1857. Bellevue Medical College, 1881. Died Feb. 7, 1936. Aged 79.

Jacob Wells Meighen, Ulen. Born 1864. University of Minnesota, 1896. Died Dec. 9, 1935. Aged 72.

O. A. Oredson, Duluth. Born 1872. Minneapolis College of Physicians & Surgeons, 1903. Died Nov. 25, 1935. Aged 63.

Dr. J. S. Reynolds moved that the association accept the invitation of the Ramsey County Medical Society to entertain the association in St. Paul, in 1937. This was seconded and carried.

Dr. F. E. Burch read the following resolution on behalf of the committee from the Minnesota Academy of Ophthalmology and Otolaryngology:

"Your committee recommends the following as defining blindness in its application to the 'Social Security Act.'"

"Blindness shall be defined as loss of sight if vision is 20/200 or less in the better eye with standard Snellen chart and cannot be remedied or improved;

"Or, if with correction the individual is unable to read Snellen 1:50;

"Or, if vision in the better eye is accompanied by a contracted field of vision to within 20 degrees of the fixation point in all quadrants, as determined by standard perimeter tests."

On motion of Dr. Earl, seconded and carried, this resolution was adopted.

The following recommendation of the Committee on Public Health Education was read by Dr. L. R. Critchfield, chairman, and was adopted:

"At the meeting of the Committee on Public Health Education today, a motion was made that the State Association go on record as favoring calling the attention of broadcasting companies still using programs promoting laxatives, to the possible dangers attendant in the uncontrolled use of these remedies. Also, that letter of commendation be written to broadcasting companies which have already discontinued such programs."

Dr. Adson, president-elect, was presented and made a few remarks.

Dr. Savage and Dr. Hayes were appointed to draw up resolutions of thanks to the following: Olmsted-Houston-Fillmore-Dodge County Medical Society, Kahler Hotel, St. Mary's Hospital, and the Mayo Clinic. The meeting adjourned.

BOOK REVIEWS

BOOKS RECEIVED FOR REVIEW

PROCTOLOGY. A Treatise on the Malformation, Injuries and Diseases of the Rectum, Anus and Pelvic Colon. Frank C. Yeomans, A.B., M.D., F.A.C.S., M.R.S.M. (London, Hon.), Prof. of Proctology, New York Polyclinic Medical School, Fellow and Past President American Proctologic Society, etc. 661 pages. Illus. Cloth binding. New York: D. Appleton-Century Co., 1936.

FUNDAMENTALS OF HUMAN PHYSIOLOGY. J. J. R. Macleod, M.B., D.Sc., F.R.S. Late Regius Professor of Physiology in University of Aberdeen, Scotland; Formerly Professor of Physiology in University of Toronto, Canada, etc. 424 pages. Illus. Price, cloth, \$2.50. St. Louis: C. V. Mosby Co., 1936.

SYNOPSIS OF CLINICAL LABORATORY METHODS. W. E. Bray, B.A., M.D., Professor of Clinical Pathology and Director of Clinical Laboratories, University of Virginia Hospitals. 324 pages. Illus. Price \$3.75. St. Louis: C. V. Mosby Company, 1936.

A very excellent, brief compilation of clinical laboratory procedures. Apparently nothing of importance has been omitted. Methods, although brief, are clear and can be followed by anyone with sufficient experience to do laboratory work.

A chapter listing stains and laboratory reagents is very convenient.

Tables of normals is another unusual and noteworthy feature.

I can recommend the book most highly.

FLOYD GRAVE, M.D.

FOR AND AGAINST DOCTORS. Compiled by Robert Hutchison and G. M. Wauchope. 168 pages. \$2.00. Baltimore: Wm. Wood & Co., 1935.

Most doctors feel that, of all the extravagant praise and blame which is applied so freely to them by the rest of the world, only a little is deserved. That doctors are the subject of continuous comment, all of us must recognize, and in fact some of our best bridge table conversation, and even wit, concerns doctors. Recognizing this and perhaps enjoying a little finding out what others say about us, Hutchison and Wauchope, doctors, English of course, have compiled the brighter of the sayings from the literature of the world. The name of the book describes its contents, "For and Against Doctors." On the whole the statements "against" are much the more amusing. Those "for" are sometimes even a little embarrassing. Such a book as this is worth having to pick up for a moment, and for the younger doctor may be a means of preventing either the pride that goes with a little success, or the discomfort which comes from unmerited criticism. Epigrams and proverbs, essays and plays, and even poetry are freely represented here. The ancient proverbs and epigrams are most interesting; they need only to be restated to make them modern, although the age of the laboratory, the robot physician and the nickel-in-the-slot doctor is beginning to give our lay commentators new material.

H. B. SWEETSER, JR., M.D.

MINNESOTA MEDICINE

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